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1898

A GUIDE BOOK
TO
THE GROUNDS AND BUILDINGS
OF
HARVARD UNIVERSITY

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A GUIDE BOOK
TO
THE GROUNDS AND BUILDINGS
OF
HARVARD UNIVERSITY



CAMBRIDGE
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1898

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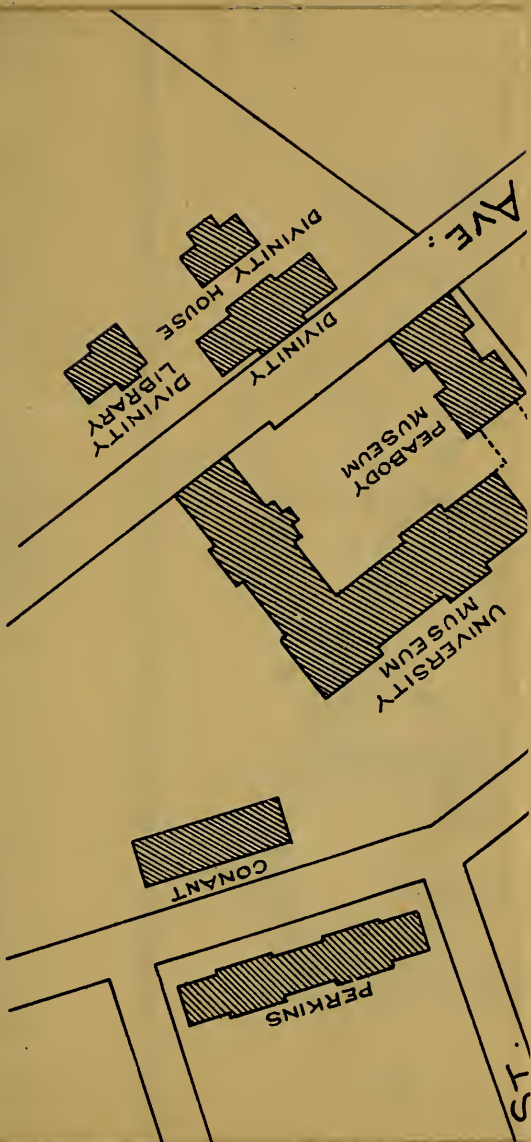


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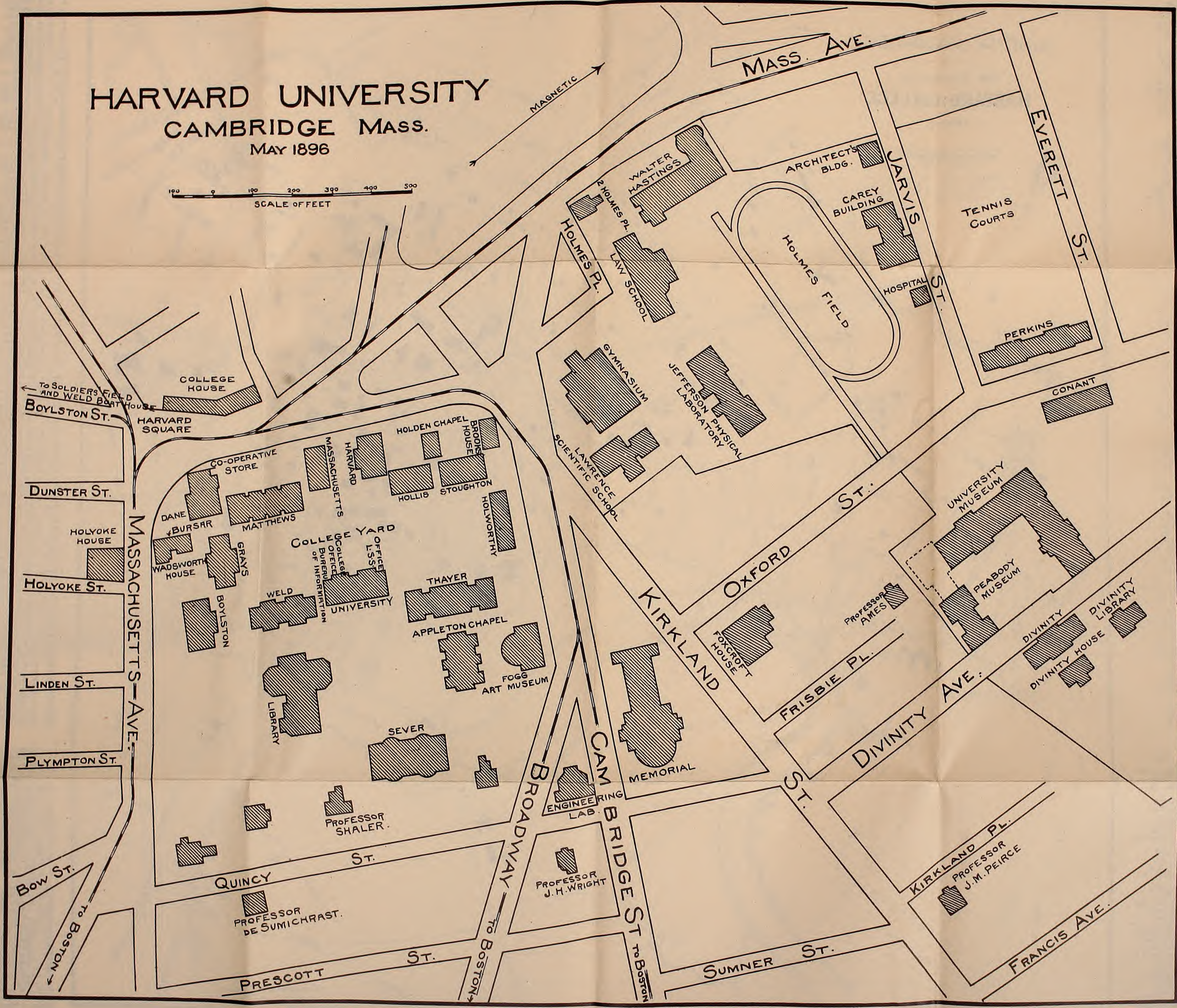
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HARVARD UNIVERSITY CAMBRIDGE MASS. MAY 1896

100 200 300 400 500
SCALE OF FEET



KEY.

Adams, C. A., 36.
 Agassiz, A., 32.
 Ames, J. B., 44.
 Arnold, J. H., 48.
 Ashley, W. J., 15-A.
 Baker, G. P., 2.
 Bancroft, W. A., 21.
 Beale, J. H., 68-A.
 Böcher, F., 20.
 Böcher, M., 72.
 Briggs, L. B., 13.
 Burke, W. S., 86.
 Byerly, W. E., 49.
 Channing, E., 8.
 Cummings, E., 37-A.
 Davenport, C. B., 41-A.
 Davis, W. M., 40-A.
 Dunbar, C. F., 4.
 Edmunds, J. K., 77.
 Elliot, C. W., 29.
 Elmwood, 1.
 Emerson, E., 68.
 Everett, C. G., 80.
 Farlow, W. G., 38-A.
 Fitz, G. W., 38-A.
 Fletcher, J. B., 9.
 Francke, K., 62-A.
 Garrett, A. C., 62.
 Goodale, G. L., 85.
 Goodwin, W. W., 66.
 Grandgent, C. H., 71-A.
 Greenough, J. B., 10.
 Gross, C., 22.
 Gulick, C. B., 64-A.
 Hale, E., 79.
 Hall, E. H., 48.
 Hart, A. B., 67.
 Hills, W. B., 63.
 Hollis, I. N., 60.
 Hooper, E. W., 5.
 Howard, A. A., 19.
 Jagemann, H. C. G. von, 71.
 James, W., 40.
 Johnson, L. J., 75-A.
 Kierman, T. J., 24.
 Kittredge, G. L., 17.
 Lane, W. C., 46.
 Langdell, C. O., 31.
 Lauman, C. R., 36-A.
 Lawrence, W., 59.
 Locke, W. A., 41.
 Love, J. L., 67-A.
 Lyon, D. G., 12.
 McKenzie, A., 61.
 Macvane, S. M., 34.
 Marcou, P. B., 67.
 Mark, E. L., 39-A.
 Marsh, A. R., 70-A.
 Moore, C. H., 54.
 Morgan, M. H., 12-A.
 Morrison, R. S., 72-A.
 Munsterberg, H., 23.
 Norton, C. E., 88.
 Noyes, J. A., 6.
 Paine, J. K., 10.
 Palmer, G. H., 28.
 Parker, C. P., 64-D.
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 Pelree, J. M., 42.
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 Tillinghast, W. H., 81.
 Torrey, J., Jr., 73.
 Toy, C. H., 11.
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 Wambaugh, E., 60-A.
 Warren, H. L., 62.
 White, J. W., 65.
 Williams, J. B., 3.
 Willson, R. W., 18.
 Wright, J. H., 32-A.

MAP OF CAMBRIDGE.

THE VICINITY OF HARVARD COLLEGE

1897-8.

SCALE OF FEET.
 0 100 200 300 400 500 600 700

Distance Circles are
 1/4 mile apart, with centre
 at University Hall.



KEY.

1. Elmwood.
 2. G. P. Baker.
 3. J. B. Williams.
 4. C. F. Dunbar.
 5. E. W. Hooper.
 6. J. A. Noyes.
 7. J. H. Thayer.
 8. E. Channing.
 9. J. B. Fletcher.
 10. J. B. Greenough.
 10-A. A. C. Potter.
 11. C. H. Toy.
 11-A. W. Robinson.
 12. D. G. Lyon.
 12-A. M. H. Morgan.
 13. LeB. R. Briggs.
 13-A. W. J. Ashley.
 16. J. K. Paine.
 17. G. L. Kittredge.
 18. R. W. Willson.
 19. A. A. Howard.
 20. F. Böcher.
 21. W. A. Bancroft.
 22. C. Gross.
 23. H. Munsterberg.
 24. T. J. Kierman.
 28. G. H. Palmer.
 29. C. W. Elliot.
 30. N. S. Shaler.
 31. C. C. Langdell.
 32. A. Agassiz.
 32-A. J. H. Wright.
 33. F. O. de Sumichrath.
 33-A. W. G. Farlow.
 34. S. M. Macvane.
 35. C. A. Adams.
 36-A. C. R. Lauman.
 37. F. W. Tausalg.
 37-A. E. Cummings.
 38. C. E. Norton.
 38-A. G. W. Fitz.
 39. J. Royce.
 39-A. E. L. Mark.
 40. W. James.
 40-A. W. M. Davis.
 41. W. A. Locke.
 41-A. C. B. Davenport.
 42. J. M. Pelree.
 43. J. H. Arnold.
 44. J. B. Ames.
 46. W. O. Lane.
 47. F. G. Peabody.
 48. E. H. Hall.
 49. W. E. Byerly.
 50. I. N. Hollis.
 50-A. E. Wambaugh.
 51. B. O. Pelree.
 52. H. L. Warren.
 53. A. C. Garrett.
 53-A. D. A. Sargent.
 54. C. H. Smyth.
 54-A. C. H. Moore.
 55. F. W. Putnam.
 56. H. P. Walcott.
 57. A. B. Hart.
 58. Radcliffe College.
 59. W. Lawrence.
 60. J. B. Thayer.
 61. A. McKenzie.
 62. J. Smith.
 62-A. K. Francke.
 64. C. P. Parker.
 64-A. C. B. Gulick.
 64-B. M. Poli.
 65. J. W. White.
 66. W. W. Goodwin.
 67. P. B. Marcou.
 67-A. J. L. Love.
 68. E. Emerson.
 68-A. J. H. Beale.
 69. T. W. Richards.
 69-A. W. C. Sabine.
 69-B. J. H. Ropes.
 70-A. A. R. Marsh.
 71. H. C. G. von Jagemann.
 71-A. C. H. Grandgent.
 72. M. Böcher.
 72-A. R. S. Morrison.
 73. J. Torrey, Jr.
 73-A. J. W. Platner.
 74. E. S. Sheldon.
 75. G. H. Parker.
 75-A. L. J. Johnson.
 76. J. Trowbridge.
 77. J. E. Edmonds.
 78. E. C. Pickering.
 79. E. Hale.
 80. C. O. Everett.
 81. W. H. Tillinghast.
 82. A. Searle.
 84. C. L. Smith.
 85. G. L. Goodale.
 86. W. S. Burke.

I. — Institute of 1770.
 J. — Jefferson Physical Laboratory, 1884.
 Ja. — Jarvis Hall, 1891.
 L. — Little's Block, 1864.
 Lb. — Library, Gore Hall, 1841.
 L.S.S. — Lawrence Scientific School, 1848.
 M. — Matthews Hall, 1872.
 Mm. — Memorial Hall, 1874.
 Mn. — Munster Block, 1882.
 Ms. — Massachusetts Hall, 1720.
 P. — Perkins Hall, 1894.
 P.H. — Phi Eta Society.
 P.M. — Peabody Museum, 1877.
 P'ln. — Porcellian Club House, 1891.
 P.A. — Phi Delta Phi Club House.
 Pt. — Prescott Hall, 1896.
 Q'cy. — Quincy Hall, 1892.
 R. — Rogers Building, 1860.
 Rad. — Randolph Hall, 1897.
 R'd. — Read's Block, 1886.
 S. — Stoughton Hall, 1805.
 Se. — Sever Hall, 1880.
 Sh. — Shepherd Block.
 Si. — Signet Club House.
 So. — Society House, 1850.
 T. — Thayer Hall, 1870.
 Tr. — Trinity Hall, 1893.
 U. — University Hall, 1815.
 W. — Weld Hall, 1872.
 W.B. — Weld Boat House, 1890.
 Wa. — Wadsworth House, 1726.
 Ware. — Ware Hall, 1894.
 Warl. — Warland Block.
 W.H. — Walter Hastings Hall, 1890.
 Wl. — Winthrop Hall, 1893.
 Z. — University Museum, 1860.
 Z. — Zeta Psi Club House.

INTRODUCTION.

HARVARD UNIVERSITY.

FOUNDATION AND DEVELOPMENT.

HARVARD COLLEGE was founded in 1636 by a vote passed at an adjourned meeting (October 28, Old Style) of the General Court of the Colony of Massachusetts Bay.

The language of the vote was as follows :

“The Court agree to give four Hundred Pounds towards a *School* or *College*, whereof two Hundred Pounds shall be paid the next year, and Two Hundred Pounds when the work is finished, and the next Court to appoint where and what building.”

The ensuing year (1637) the General Court appointed twelve of the most eminent men of the colony (among whom were John Cotton and John Winthrop) “to take order for a college at Newtown.” The name “Newtown” was soon afterwards changed by the General Court to *Cambridge*, in recognition of the English University where many of the colonists had been educated.

The following year (1638) John Harvard, a non-conforming clergyman of England, who had been in the colony about one year, died at Charlestown, leaving half of his whole property and his entire library (about 300

volumes) to the institution. The value of this bequest was more than double the entire sum originally voted by the Court, and it was resolved to open the College at once, and to give it the name of *Harvard*. The first class was formed in the same year.

In 1642, during the administration of the first President, Henry Dunster, the general government of the College and the management of its funds were placed in the hands of a *Board of Overseers* consisting of "the Governor and Deputy-Governor for the time being, and all the magistrates of this jurisdiction [General Court], together with the teaching elders of the six next adjoining towns, — viz., Cambridge, Watertown, Charlestown, Boston, Roxbury, and Dorchester, and the President of the said College for the time being."

The Board of Overseers appears to have been too large a body to have the immediate direction of the College, and in 1650, through the efforts of President Dunster and others, a charter was granted to the College by the General Court, by which the College was made a *Corporation*, consisting of the President, five Fellows, and a Treasurer, or Bursar, to have perpetual succession by the election of members to supply vacancies, and to be called by the name of the *President and Fellows of Harvard College*. The powers conferred by this Act were accompanied with a provision which required that all Orders and By-Laws of the Corporation should have the consent of the Overseers before they went into operation. This provision was found inconvenient and embarrassing in practice, and in 1657 a law was passed, called "An Appendix to the College Charter," by which the acts of the Corporation were declared to have immediate force and

effect, and to be merely "alterable" by the Overseers, to whom the Corporation was to be "responsible."

The Corporation and the Board of Overseers remain to the present time the governing powers of the University; — changes in the constitution and the election of the latter board have, however, been made; — and this charter with its appendix is now in force precisely as first drafted, notwithstanding that several attempts were made, during the first fifty years of its existence, to alter it or to substitute another in its place. Several new charters which would have essentially changed the organization of the College passed both branches of the Colonial Legislature, but failed to receive the sanction of the King or Governor, and none of the proposed changes ever actually went into operation. The last attempt to obtain a new college charter from the Crown was in 1700, when a draft of a charter was prepared "to be solicited for to his Majesty," which passed both branches of the Legislature, but was never presented to the King.

After the constitution of the College had been for a number of years in this unsettled condition, the General Court in 1707 passed a vote, reasserting the integrity and force of the charter of 1650, and it remains "the venerable source of collegiate authority" to this day.

In 1780, when a Constitution was framed for the new Commonwealth of Massachusetts, Articles were introduced, securing to the President and Fellows of Harvard College the perpetual enjoyment of all their vested rights and powers, and providing for the organization of the Board of Overseers.

From the foundation of 1636 has grown the present University, with an endowment of more than nine millions

of dollars in quick capital, and more than five millions invested in buildings, libraries, laboratories, museums, observatories, gardens, collections, apparatus, etc.

At the present time the University includes the following departments where instruction is regularly given to students: Harvard College, the Lawrence Scientific School, the Graduate School, the Divinity School, the Law School, the Medical School, the Dental School, the Veterinary School, the Bussey Institution, the Summer School. Other departments are the Arnold Arboretum; the University Library, consisting of the College Library, the special libraries of the schools before named, seven laboratory, sixteen class-room, and four museum libraries; the Chemical Laboratory; the Jefferson Physical Laboratory; the special laboratories of the schools before enumerated; the Laboratory of the Peabody Museum; the Laboratories of Zoölogy, Palaeontology, Entomology, Geology, Physical Geography, Cryptogamic and Phanerogamic Botany, Mineralogy; the University Museum, including the Museum of Comparative Zoölogy, the Botanical Museum, the Mineralogical Museum; the Peabody Museum; the Semitic Museum; the William Hayes Fogg Art Museum; the Warren Anatomical Museum at the Medical School; the museums of the various other schools; the Botanic Garden; the Gray Herbarium; the Astronomical Observatory; the Hemenway Gymnasium, the play-grounds, the boat houses, and the buildings devoted to athletic sports.

DEPARTMENTS OF THE UNIVERSITY.

In matters of administration, three of the departments of the University are closely united: HARVARD

COLLEGE, THE LAWRENCE SCIENTIFIC SCHOOL, and the GRADUATE SCHOOL are under the charge of the Faculty of Arts and Sciences; and the students of these three departments do much of their work together, using recitation rooms, laboratories, museums, libraries, etc., in common.

To the students under its charge this Faculty offers more than five hundred courses of instruction, divided among the following subjects: Semitic Languages and History; Indo-Iranian Languages; Greek; Latin; Classical Philology; English; German; Germanic Philology; French; Italian; Spanish; Romance Philology; Comparative Literature; Celtic; Slavic Languages; History; Government; Economics; Philosophy; Education and Teaching; Fine Arts; Architecture; Music; Mathematics; Astronomy; Engineering; Military Science; Physics; Chemistry; Botany; Zoölogy; Geology; Mineralogy and Petrography; Mining and Metallurgy; American Archaeology and Ethnology; Anatomy, Physiology, and Hygiene.

The Lawrence Scientific School offers eleven four-year courses of study: Civil and Topographical Engineering; Electrical Engineering; Mechanical Engineering; Mining and Metallurgy; Architecture; Chemistry; Geology; Biology; Anatomy, Physiology, and Hygiene; Science for Teachers; General Science.

The Law School occupies Austin Hall, situated on Holmes Field, in Cambridge, near the gymnasium. The building contains lecture rooms, reading rooms, and other accommodations for students, and a library which numbers 44,000 volumes. The following courses of study are offered: Contracts; Criminal Law and Pro-

cedure; Property; Torts; Civil Procedure at Common Law; Agency; Bills of Exchange and Promissory Notes; Carriers; Contracts and Quasi-Contracts; Evidence; Insurance; Jurisdiction and Procedure in Equity; Sales of Personal Property; Trusts; Damages; the Interpretation of Statutes; Law of Persons; Conflict of Laws and International Law; Constitutional Law; Corporations; Partnership; Comparative Jurisprudence; Roman Law; Suretyship; Mortgages; Massachusetts Practice; Civil Procedure under the New York Code.

The Divinity School occupies Divinity Hall and the adjoining Library on Divinity Avenue, Cambridge. Divinity Hall contains studies and bedrooms, a chapel, and a reading room. The Library building contains the library, consisting of 27,000 volumes and 5,600 pamphlets, classified in about seventy departments, and lecture and recitation rooms. The Faculty offers courses in the following subjects: Old Testament; New Testament; Church History; Social Questions; Comparative Study of Religions; Theology; Homiletics and Pastoral Care. Instruction is also given in Elocution, and there are general religious exercises of which the students have charge.

The Medical School occupies a building on Boylston Street, Boston, adjoining the Boston Public Library. The building contains the usual lecture and recitation rooms; the laboratories of anatomy, physiology, histology, chemistry, bacteriology, and pathological anatomy; the library, which is distributed among the several departments; and the Warren Anatomical Museum. The Faculty offers instruction in the following subjects: Anatomy; Histology and Embryology; Bacteriology;

Physiology; Chemistry; Hygiene; Therapeutics and Materia Medica; Pathology and Pathological Anatomy; Surgery; Orthopedic Surgery; Clinical Surgery; Dermatology; Syphilis; Theory and Practice of Physic; Clinical Medicine; Neurology; Psychiatry; Pediatrics; Obstetrics; Gynaecology; Ovarian Tumors; Ophthalmology; Otology; Diseases of the Throat and Nose; Orthopedics; Diseases of the Genito-Urinary Apparatus; Legal Medicine; Municipal Sanitation; Clinical Microscopy; Cookery.

The Dental School, established in 1867, occupies a building on North Grove Street, Boston, formerly used by the Medical School. In addition to the usual lecture and recitation rooms and laboratories, the building contains a library, and a museum of over 3000 specimens.

The Faculty offers the following courses of instruction: Anatomy; Physiology; Chemistry; Histology and Embryology; Bacteriology; Operative Dentistry; Mechanical Dentistry and Orthodontia; Surgery; Operative Surgery; Dental Pathology; Oral Anatomy and Physiology; Surgical Pathology; Materia Medica; Neurology; Crown and Bridge Work and Metallurgy.

The School of Veterinary Medicine, instituted in the year 1882-83, is situated at and near the corner of Village and Lucas Streets, Boston. It occupies two brick buildings: the Lucas Street building, which contains rooms for lectures and dissections, the library, and the museum, and the Village Street hospital, for the treatment and observation of sick animals. In a third building, a free clinic is maintained in connection with the school.

The Faculty offers the following courses of instruction: Anatomy; Bacteriology; Histology and Embryology;

Physiology; Chemistry; Botany; Materia Medica; Pathology and Pathological Anatomy; Theory and Practice; Ophthalmology; Surgery; Obstetrics; Meat Inspection; Warranty and Evidence; ~~Clinical~~ Veterinary Medicine and Surgery.

The Bussey Institution, a school of agriculture and horticulture, established in execution of trusts created by the will of Benjamin Bussey, was opened in 1871-72. It gives systematic instruction in agriculture, in useful and ornamental gardening, and in chemistry and natural history as applied to these arts. The Institution is situated at the outer edge of Jamaica Plain, about five miles southwest of the centre of Boston, and close to the Forest Hills station on the Boston and Providence Railroad. It is, in general, meant for young men who intend to become practical farmers, gardeners, florists, or landscape gardeners; as well as for those who will be called upon to manage large estates, or who wish to qualify themselves to be overseers or superintendents of farms, country seats, parks, towns, highways, or public institutions. It may serve also in special cases as a school for the systematic training of young men fond of country life or interested in natural history.

The Faculty offers instruction in the following subjects: Theory and Practice of Farming; Horticulture; Natural History; Agricultural Chemistry. Instruction is given by lectures and recitations, and by practical exercises in the laboratories, greenhouses, and fields connected with the farm.

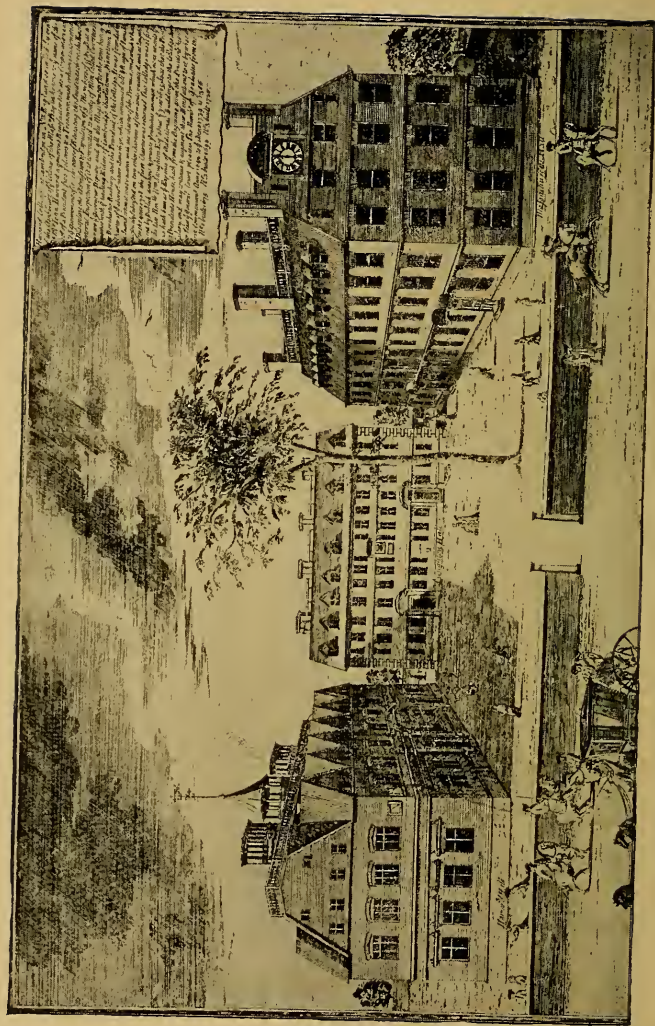
The Summer School, in charge of a Committee of the Faculty of Arts and Sciences, is in session for six weeks during the first half of the Summer vacation. The School

offers courses of instruction in the following subjects : English ; French ; German ; Greek ; Latin ; History and Government ; Engineering ; Physics ; Chemistry ; Botany ; Geology ; Geography ; Physical Training. Courses are also offered at the Harvard Medical School. Women as well as men are admitted to the summer courses, except to those at the Medical School, to those in Engineering, and to the two more advanced courses in Geology.

In the departments enumerated above instruction is regularly given to students. Students are also, under certain conditions to be determined in the individual case, admitted to the other departments of the University, a brief description of which, as well as of the buildings and the equipment of the departments already named, will be found in the following pages.

The University issues an annual Cat logue, and pamphlets describing the various schools and departments of the University and the courses of instruction of each of the divisions or departments under the Faculty of Arts and Sciences.

In general, these pamphlets give lists of officers of instruction and of government and of students ; and detailed statements concerning the following subjects : buildings, libraries, laboratories, museums, etc. ; requirements for admission, methods of instruction, text-books, courses of instruction, clinical advantages, examinations, requirements for degrees, prizes, scholarships, summer courses, fees, and expenses. Copies of these pamphlets may be obtained at the Publication Office of the University, 2 University Hall, Cambridge.



"A PROSPECT OF THE COLLEDGES IN CAMBRIDGE IN NEW ENGLAND."
 (From an engraving made by W. Price in 1739.)

THE COLLEGE YARD.

AN HISTORICAL SKETCH PREPARED FOR THE HARVARD
MEMORIAL SOCIETY.

There is nothing better to say to a stranger entering the Yard of Harvard College than what Lowell said in his oration on the two hundred and fiftieth anniversary of the founding of the College. Having first praised the architectural beauties of Oxford and Cambridge, and acknowledged the fitness of their quadrangles and cloisters to stand before our eyes for all the past glories of English scholarship and all the venerable associations of those aged universities, he frankly confessed of the New England college that its past is "well-nigh desolate of aesthetic stimulus. We have none," he said, "or next to none, of these coignes of vantage for the tendrils of memory or affection. Not one of our older buildings is venerable, or will ever become so. Time refuses to console them. They look as if they meant business, and nothing more." The interest of these buildings is very great; but it is entirely historical and practical, not artistic. For beauty, one must look to the grass and to the noble elms; for inspiration, to the story of the hard beginnings of the College and its fidelity to brave ideals, and to the lives and characters of the men who have studied and taught here, and from here have passed into the service of their country, and of just causes, and of mankind.

Nevertheless, it seems quite clear that the founders of Harvard, poor men though they were, and in a wilderness,

had in mind the English universities, and Cambridge especially, when they set about their task. Many of them were Cambridge men; and the first building, rude and ill-built as it was, had much that was suggestive of a "Hall" in an English university. We do not certainly know where it stood, though it was probably near the site of Grays Hall, but the early records show that it was a home as well as a place of study. There were in it chambers, studies, a kitchen, and a buttery; and on top there was a "turret." We even know the cost of the various items purchased in fitting up the several studies. Here, for example, is the account, taken from the first College Book, for the study occupied by George Downing of the Class of 1642. In the entry he is called "Sir" Downing because he was a graduate when the account was made; later he went into the English diplomatic service, was knighted, and won for himself an eminence not very admirable, for he was reputed a miser and a turn-coat.

SIR DOWNINGS STUDY.

		lb	s	d
Impr.	For boards 272 foote	0	16	- 3 ob. q.]
It.	Ten dayes & $\frac{1}{2}$ worke at 22 ^d a day . . .	0	19	- 3
It.	For y ^e Smithe's worke	0	6	- 11
It.	For glasse	0	2	- 1
It.	For nayles, locke & key	0	3	-
		<hr/>		
Suma totalis		2	7	- 6 ob. q.]

There is no picture of this first "college," but the high ideal of the builders and their scanty means resulted in a structure of which one writer tells us that it was "thought by some to be too gorgeous for a wilderness, and yet too mean in others' apprehension for a college." It was soon

in need of repairs and proved inadequate to the wants even of the scanty College population of those days. Within ten years of its completion the "governors" of the institution had begun to "purchase the neighbors' houses" to accommodate students. One of the houses bought for this purpose was Mr. Edward Goffe's, and it came to be known as Goffe's College. The term "college" was at first applied to each of the separate buildings, and this usage to some extent still survives. In 1654 the commissioners of the Association for the Propagation of the Gospel among the Indians were persuaded to erect a small brick building for Indian youth, and this was known as the Indian College. But the experiment was not successful, and only one Indian ever received a Harvard degree. The Indian College was poorly built, and was a ruin before the end of the century. The "Old College" was succeeded in 1672 by the first Harvard Hall, or Harvard "College," and this seems to have been well built, for it stood nearly a century.

We have a good picture of this first Harvard Hall, and we know that it stood in the Yard, just to the left of the main entrance. It stood alone until the year 1700, when a new "college," called Stoughton in honor of Lieutenant Governor William Stoughton, who gave it, was built in front of the main entrance, making a right angle with the eastern end of Harvard. A few years later, under the guidance of President John Leverett, the institution entered on a new and more prosperous period in its career, and in the year 1718 the General Court of Massachusetts made a grant for still another "college," the oldest of all the buildings now standing.

This is Massachusetts Hall, on the right as one enters the Yard through the Johnston Gate, and facing the site of the first Harvard. It made, with Harvard and Stoughton, a very small quadrangle, and of these three buildings we have an engraving, made near the middle of the eighteenth century. Behind Stoughton, as it appears in that engraving, there was an old field, crossed by a brook; probably no one dreamed of a time when it would be covered with other College buildings. In 1720, when Massachusetts was finished, the graduating class numbered thirty-seven, and it was many years before any great increase came. Cambridge was but a village, lying chiefly between the College and the river. Boston itself was but a small town, though thriving, and no bridge connected the two places. One source of the income of the College was the tolls of the Charlestown Ferry, which Cambridge people usually crossed when they went to Boston. The teaching in the College was chiefly the work of tutors. The first professorship, the Hollis Professorship of Divinity, was established the year after Massachusetts was built.

It is pleasant to know that the outside of Massachusetts has not been changed at all. Every class since 1720 has seen the same square walls of red brick, the small windows, the narrow doorways. But the inside has been much altered. At first it was given over entirely to small chambers and still smaller "studies." After the fight at Lexington, in the Revolutionary War, the chambers were for a time occupied by American troops, the students being sent away to Concord. Early in the present century, in President Kirkland's time, a part of the lower floor was devoted to lectures and society meetings, and

in 1870 the remaining chambers and studies made way for large lecture halls and examination rooms. Several of the larger lecture courses, chiefly in history, are now given here. While the building was used as a dormitory many of the most eminent sons of Harvard lived in it.

During the eighteenth century no progress whatever was made towards the development of the quadrangle into which one now looks on entering the Johnston Gate. Six years after the completion of Massachusetts, the Province legislature appropriated money to build the President a house; but the site chosen seems to show that it was not meant to bear any especial relation to the buildings already standing. Wadsworth House, as it is now called in honor of the first President who occupied it, was the home of every one of the Presidents who succeeded him until President Edward Everett went out of office. It shares with the Craigie House the distinction of having sheltered Washington, but it was found inadequate for a headquarters. In recent years it has been put to many different uses. It has been altered from time to time, but except for the paint the outside is still suggestive of the sober days and sober lives with which we naturally associate it in our thought.

When the College was a century old, and had trained hundreds of clergymen, it was still without a place of worship of its own, although it had an interest in the parish meeting house which stood near the site of Dane Hall. The wife and daughter of Samuel Holden, M.P., who himself had been a liberal benefactor of Harvard, gave £400 to build a chapel, and a site immediately in the rear of the first Harvard was chosen. Holden Chapel was the first of the buildings to take its name

from an English benefactor, and it is rather curious that the others so named are very close to it. About twenty years later, there being need of a new dormitory, the legislature voted the necessary sums, a site to the northeast of Harvard was chosen, and the building was named for Thomas Hollis, an English merchant, who died in 1731 and whose benefactions were the most remarkable feature in the cherishing of the College up to that time. He was a Baptist, and yet he gave sums which in those days were considered vast to help a school which had dismissed its first President because he objected to infant baptism. The Hollis Professorship of Divinity, established more than a hundred and fifty years ago, was never until the present time filled by a man in sympathy with the creed of its founder.

Hollis Hall was scarcely built when the worst disaster the College ever met again reduced the number of buildings to five: Harvard Hall was burned in 1764, and it was only with the greatest difficulty that Stoughton and Massachusetts were saved from the flames. The library and the apparatus were lost, but the Province, feeling an especial responsibility because the legislature was holding its sessions in the hall at the time, promptly voted the money to replace it, and a liberal stream of private benefactions poured into the College treasury, so that there was soon a new library and new apparatus. The new Harvard was devoted to many uses. It had a kitchen and buttery, a dining room, a chapel, a library, several lecture halls, and the belfry. To tell how, from time to time, it lost its various uses, until in our day it has only lecture rooms and departmental libraries, would be to trace the expansion of the Colonial College into the American University.

The building of Harvard Hall was, in fact, the completion of the Colonial College. The five halls standing in 1776, with the old President's House, stood unchanged and without increase when the Revolution came. From them the students migrated to Concord while the British troops held Boston, and into them American troops entered while Washington commanded in Cambridge. We know that the College was very patriotic. Indeed, it can claim no small share in the Revolution. True, some of its officers and graduates had written verses in Latin, Greek, and English and printed them in a volume called "*Pietas et Gratulatio Collegii Cantabrigiæ apud Novanglòs*" and sent them to George III on his accession to the throne, following in this the example of the English Universities; and the classes were still graded according to the social position of the students. But for all that, Harvard was thoroughly American. It had drifted entirely away from the Cambridge traditions of its founders. It had bred Quincy and Otis and two Adamses; President Langdon was ready to fight or to pray for independence, and John Hancock had been chosen Treasurer because he was a patriot, and not because he was a good man for the place—he was, in fact, the worst treasurer the College ever had. When the war ended, the College, with little or no change in its constitution or character, entered easily on its course as an American institution, thoroughly in sympathy with the ideas for which the Republic stands and commended to popular favor by the eminence of its graduates in the public service.

As if to open the way into a larger future, the first Stoughton Hall, being in a ruinous state, was taken down in 1780, the year in which Harvard took the name "Uni-

versity." Its destruction certainly opened the way into the present Yard. It was not rebuilt until 1804, and then on a new site, north of Hollis, and it stood a year or more under the name New Hall; but in the end the old name was given it. The money to build it came from a lottery, and this method of raising funds, approved by the public opinion of those days, was again employed in 1812, when Holworthy was built. This was the last hall to be named for an English benefactor. The man so honored was Sir Matthew Holworthy, who died in 1678 and left the College £1,000. Holworthy is the youngest of the buildings commonly called old, and its site is important because with Stoughton it formed the first corner in the main quadrangle of the Yard. From that time there was sure to be a quadrangle very much larger than the old one formed by Massachusetts, Harvard, and the first Stoughton, or the other enclosed by Harvard, Holden, and Hollis. In November, 1812, the President and Fellows appointed a committee "to devise the form and site of a building in the College grounds to include a Commons Hall;" and it was voted that in choosing a site the committee "have reference to other buildings which may in future be erected." The committee chose a site directly opposite the main entrance; Charles Bulfinch was the architect, and the Hall when completed was called University.

University was well named, whether we consider the uses to which it has been put or the time at which it was built. President Kirkland was in office, and his administration is usually taken as marking the entrance of Harvard into the life of a true university; and of this university life the new hall has been the centre. For

years the religious exercises, the public exhibitions, and the students' commons made the building important to all members of the University community; and the administrative machinery has always been operated from this point. In President Kirkland's day five new professorships were established, and the departments of Divinity, Law, and Medicine were organized in university fashion. The Massachusetts Medical College in Boston and Divinity Hall in Cambridge gave evidence that the Yard was not to be the limit of physical expansion. They were forerunners of so many buildings for scientific and other purposes, built outside the Yard, that it was soon only a question of time when the Yard itself would become of less practical importance than the departments outside it. It was the beginning of a process which is still going on, and as a result of which we see Harvard admission examinations offered in Tokio and a Harvard Observatory on top of a Peruvian mountain.

But the Yard was not yet finished. President Quincy, who succeeded Kirkland, saw two very important changes in it. On the site of the old meeting house, south of Massachusetts, Dane Hall was built in 1832, through the liberality of Nathan Dane, and for fifty years it was the University School of Law; here Greenleaf and Story and Parsons lectured. It did not, however, look much like the present Dane, nor stand in the same spot, but farther north. In 1845 important changes were made in the building. Before its removal in 1871 to make room for Matthews Hall, it helped to define the main quadrangle; but Gore Hall, begun in 1837, does not belong to the main quadrangle at all. It was, in fact, the beginning of a second quadrangle; but evidently

not by design. At first it was nothing more than the western wing of the present building, but it was then sufficient in size to harbor the largest library in the country more commodiously than, with its several additions and rearrangements, it now harbors the third largest. Excepting University, it was the only stone building in the Yard, and it shares with University the distinction of touching the interests of more men, inside and outside the University, than any other of the Harvard buildings.

The main quadrangle as we now see it was not completely outlined until the building of Grays Hall in 1863. Meantime, however, in 1857-58, Boylston Hall and Appleton Chapel had risen on opposite sides of Gore, Appleton serving to define the northern limit of the new quadrangle. Both had their origin in the benefactions of wealthy Bostonians, from whom they took their respective names. Appleton Chapel supplanted University as the centre of the religious life of the University, as University had supplanted Holden and Harvard. Boylston, the first of the buildings distinctly dedicated to the physical sciences, may be regarded as a humble beginning of an extremely potent development in the later history of the University. Grays, an unpretentious dormitory, taking its name from a family eminent in the law and eminent in generosity to the University, was the last building erected in the Yard before the present era of unprecedented expansion began with the inauguration of President Eliot in 1869.

In the Yard three new dormitories, with Sever Hall, the Fogg Museum of Art, and Phillips Brooks House, testify to the eagerness with which the new vigor presses into the space still left for the builder. They may serve

also to indicate the chief source of energy; for they are all examples of a munificence unexampled until our own times in the history of benefactions to American universities. They stand for a period in which such sums have poured into college treasuries as in other countries could have come only from royal patrons. The three dormitories, Weld, Matthews, and Thayer, have completely filled out the line of the main quadrangle. Sever fixes the eastern limit of the second quadrangle.

It has been said that University Hall is still the centre of University life. That is true enough; but in another sense Memorial Hall is also its centre. The aim of the University has always been to train men for high services, and Memorial commemorates the military service the sons of the University rendered in the Civil War. First conceived in the enthusiasm with which Harvard welcomed those of its graduates who came back alive from the war, it was built at last by the contributions of hundreds of alumni and friends who wished to put into enduring form their reverence for those who never returned. Its tower is the first object to catch the eye of one who approaches the University; its influence outlasts all others in the minds of those who go away. Without it, and that for which it stands, Harvard might still be a great University, but not what it aims to be — an adornment and a support to the Republic.



THE JOHNSTON GATE.



THE MEYER GATE.

DESCRIPTION
OF THE
GROUNDS AND BUILDINGS.

The Johnston Gate, at the main entrance to the Yard, built in 1890, was the gift of Samuel Johnston of Chicago. The ironwork, however, was given by Mrs. George von L. Meyer, of Boston. The gate was designed by Charles Follen McKim. On a tablet in the right wall is the following inscription :

AFTER GOD HAD CARRIED VS SAFE TO NEW ENGLAND

AND WEE HAD BVILDED OVR HOVSES

PROVIDED NECESSARIES FOR OVR LIVELI HOOD

REARD CONVENIENT PLACES FOR GODS WORSHIP

AND SETTLED THE CIVILL GOVERNMENT

ONE OF THE NEXT THINGS WE LONGED FOR
AND LOOKED AFTER WAS TO ADVANCE LEARNING

AND PERPETVATE IT TO POSTERITY

DREADING TO LEAVE AN ILLITERATE MINISTRY
TO THE CHVRCHES WHEN OVR PRESENT MINISTERS

SHALL LIE IN THE DVST

NEW ENGLANDS FIRST FRUITS

A tablet on the left wall bears this inscription :

BY THE GENERAL COURT OF MASSACHUSETTS BAY
 28 OCTOBER 1636, AGREED TO GIVE 400*℥*
 TOWARDS A SCHOALE OR COLLEDGE WHEREOF 200*℥*
 TO BEE PAID THE NEXT YEARE & 200*℥*
 WHEN THE WORK IS FINISHED & THE NEXT COVRT
 TO APPOINT WHEARE & W^T BVILDING
 15 NOVEMBER 1637 THE COLLEDG IS ORDERED
 TO BEE AT NEWETOWNE
 2 MAY 1638 IT IS ORDERED THAT NEWETOWNE
 SHALL HENCEFORWARD BE CALLED CAMBRIGE
 12 MARCH 1638-9 IT IS ORDERED THAT THE COLLEDGE
 AGREED VPON FORMERLY TO BEE BVILT AT CAMBRIDG
 SHALBEE CALLED HARVARD COLLEDGE

The Meyer Gate, at the Cambridge Street entrance to the Yard, opposite the delta on which stands Memorial Hall, was the gift of George von Lengerke Meyer, of Boston, of the Class of 1879. Designed by Charles Follen McKim, it was erected in 1891.

University Hall, built in 1815, of white Chelmsford granite, after a design by Bulfinch, cost \$65,000, of which \$53,000 was given by the State of Massachusetts. Soon after its completion there was added to the western façade a portico, which was, however, removed in 1842. For a while it contained the library and the philosophical apparatus, and the room for ordinary chapel assembly. There were galleries, pews for members of the Faculty and their families, and a pulpit in the middle of the east side. The Hall became the centre of the University life; for some time the students' Commons were here; public dinners



UNIVERSITY HALL.

and Commencement and Exhibition Performances were given here as late as 1867; and here were entertained Presidents Monroe, Jackson, Van Buren, and the Marquis de Lafayette. Of late years the hall has undergone much alteration. In 1849 the lower floor, and in 1867 the chapel, were cut up into recitation rooms; and other changes have given the building over to lectures and administrative work. In 1896, however, the original chapel was restored, and is now used for the meetings of the Faculty of Arts and Sciences. Its walls are hung with portraits of former officers and of benefactors of the University. Nearly on this site, but a little to the east, stood, probably, the first Stoughton Hall, built in 1700; and here, also, was the spring at which Professor Wigglesworth used to water his cow.

Massachusetts Hall was built from a grant of £3,500 made in 1718 by the Province of Massachusetts. It was finished in 1720, and was at first used as a dormitory. After the Battle of Lexington, 1775-76, it was used as a barracks by the Continental soldiers and somewhat damaged. About one hundred years after the erection of the building, the lower part was given over to rooms for lectures and societies; and in 1870 the whole building was devoted to the public uses of the University. In the lower hall are held the Phi Beta Kappa dinners; and here, on Commencement, the President and the other officers of the University welcome the Governor of the Commonwealth, his staff, and the invited guests of the day.

Harvard Hall, built in 1765-66 by the Province of Massachusetts, at a cost of \$23,000, replaced the first



MASSACHUSETTS HALL.



HARVARD HALL.

Harvard Hall, which was destroyed by fire in 1764. This was one of the severest losses ever sustained by the University, as the Hall contained at the time of the fire the best library in the country, including among other books some given by Bishop Berkeley, and the library of John Harvard, from which only one book, "Downam, his Warfare," was saved. As the building was occupied at the time by the Province Legislature, which had been driven from Boston by the small pox, the Province of Massachusetts considered itself responsible for the loss, and therefore built the present Harvard Hall. This first contained the chapel, the library, the philosophical apparatus, and the dining hall of the College. Like Massachusetts Hall, it was used and somewhat damaged by the troops in Revolutionary times. In it Washington was received in 1789, and Monroe in 1817. Except Holden Chapel it is the only one of the early College buildings which has never been used as a dormitory. The building is now used for lectures and recitations and contains the libraries of the Departments of the Classics, History and Government, and Economics.

The Library of the Department of the Classics (Room 3).
 — This library was established for the use of students in the Department of the Classics with the design of providing them with facilities for the pursuit of their studies. It contains the necessary books for this purpose, such as dictionaries, general treatises on grammar, history, antiquities, literature, philosophy, etc., together with all the most recent and many of the more valuable older editions of Greek and Latin authors, in all about 3000 volumes.

Library of the Department of History and Government.

— This library, which is connected with that of Political Economy, contains about 1400 volumes on English and continental European history, and about 850 on American history. It is designed to provide additional copies of all the works of reference most needed in the general courses.

Library of the Department of Political Economy (Room 2). — This library contains 926 volumes, selected for the use of students in connection with the instruction offered by the department. The nature of the instruction makes it necessary that the important standard literature in economics shall be readily accessible for students; hence the collection contains the books which would naturally find a place in any compact library on the subject, — the important books on monetary topics, taxation and finance, international trade, economic history, social questions, the dictionaries and compends of political economy, statistical abstracts, official documents, reports, census volumes, both of the United States and of foreign countries, and more particularly the systematic works of the great writers of earlier and later date.

Hollis Hall, built by the Province of Massachusetts in 1763, at a cost of £3,000, and named in honor of the first Thomas Hollis, contains 32 rooms. Hollis, who established two chairs, the Hollis Professorship of Divinity and the Hollis Professorship of Mathematics and Natural Philosophy, was the greatest benefactor of the University during its first century of existence; and during the eighteenth century his example was followed by other members of his family. This building was, from the first, used as a dormitory, but some of its rooms have

been occupied by societies, such as the Harvard Washington Corps, the Engine Company, and the Pi Eta. Like the other older buildings it was given up to quarters for soldiers during the Revolutionary War, and somewhat damaged.

Stoughton Hall, built in 1805 at a cost of about \$24,000, of which three-fourths was secured by a public lottery authorized by the State, was named for Lieutenant Governor William Stoughton, who, as Chief Justice in the Witchcraft Trials, was active in their prosecution. It was he who gave the funds for the first Stoughton Hall, built in 1700. The present Stoughton, at first called New Hall, was used from the beginning as a dormitory. The Hasty Pudding Club formerly met and had reading rooms here. Like Hollis Hall, the building has 32 rooms.

Phillips Brooks House, a memorial to Phillips Brooks, of the Class of 1855, was designed by Alexander Wadsworth Longfellow, of the Class of 1876. It was begun in March, 1898, and is to cost, when finished, \$50,000. Here the religious and charitable work of the University finds its centre. Besides the space devoted to the volunteer charity work of the students, the building contains a large general meeting room, a room with facilities for giving dinners, a committee room, two society rooms, a library, memorials to Phillips Brooks and others, and an assembly hall occupying the whole of the top story.

Holden Chapel.—Madam Holden, wife of Samuel Holden, M.P., Governor of the Bank of England,—who



HOLLIS HALL.



STOUGHTON HALL.

was regarded as the head of the English Dissenters, — together with her daughters, gave to the College £400. With this money the first building put up solely for religious uses by the University, Holden Chapel, was built in 1744. On its west front the Holden Arms are carved in wood. When the present Harvard Hall was built, Holden ceased to be used for religious services. For a while it contained four rooms, being divided into two stories, each of which consisted of two apartments. Those on the lower floor were used as chemical laboratory and lecture room; those on the upper floor as anatomical museum and lecture room; but after the building of Boylston Hall each story was converted into one large recitation room, and later these were thrown together into a single room. In recent years Holden Chapel has been used chiefly for religious purposes, society meetings, etc.

Holworthy Hall was built, chiefly from the proceeds of a lottery authorized by the State of Massachusetts, in 1812. It was named for Sir Matthew Holworthy, an English merchant, who, when he died, in 1678, left to the College £1,000, the largest single gift received in the seventeenth century. Used always as a dormitory, this hall has for many years been considered, on account of its large rooms, the most desirable in the Yard, and was for a while used exclusively by seniors. Room 12, which was visited in 1860 by the Prince of Wales, and in 1871 by the Duke Alexis, contains pictures of these personages presented by themselves. Holworthy has 24 suites of rooms, each consisting of a study and two single bedrooms.



HOLDEN CHAPEL.



HOLWORTHY HALL.

Thayer Hall was erected in 1869-70 at a cost of \$100,000. It was the gift of Nathaniel Thayer, a merchant of Boston, a member of the Board of Overseers from 1866 until 1868, a Fellow of the College from 1868 until 1875. He gave it in memory of his father, Nathaniel Thayer, of the Class of 1789, in 1792-93, a tutor in the College, and of his brother, John Eliot Thayer, the founder of the Thayer Scholarships. This dormitory, which contains 68 suites of rooms, was designed to accommodate 116 students and three officers.

Weld Hall, containing 54 suites of rooms, of which 22 are single and the rest double, was built in 1871-72, at a cost of about \$97,000. It was given by William Fletcher Weld, in memory of his brother, Stephen Minot Weld, of the Class of 1826, a benefactor of the College, a member of the Board of Overseers from 1858 until his death in 1867, and one of the first to conceive the idea of a Memorial Hall.

Grays Hall, built in 1863 by the College, is named for Francis Calley Gray, of the Class of 1809, a Fellow of the College from 1826 until 1836, John Chipman Gray, of the Class of 1811, a member of the Board Overseers from 1847 until 1854, and William Gray, of the Class of 1829, a member of the Board of Overseers from 1866 until 1872, benefactors of the University. It has always been used as a dormitory, and has 49 suites of rooms, each consisting of a study and an alcove. Antiquarian research has made it seem probable that the first of all the College buildings formerly stood on this site.



THAYER HALL.



WELD HALL.

Matthews Hall, completed in 1872, was the gift of Nathan Matthews, of Boston, who stipulated that half of the net income from the dormitory should be used to aid students preparing for the ministry of the Protestant Episcopal Church and sons of clergymen of that church. Fifteen Matthews Scholarships were established. This dormitory, containing 60 suites of rooms, is thought to stand on the site of the old Indian College built in 1666.

College House, originally called Graduates' Hall, was erected at the expense of the College in 1832. In 1845, when it was occupied largely by law students, an addition was made in order to give room for a store and for the office of the Omnibus Company. Undergraduates were first allowed to room here in 1846-47, but it was not until 1860 that the name was changed to College House. The upper floors contain 70 rooms; the lower floor is occupied by stores. It is situated in Massachusetts Avenue, opposite Dane Hall.

Holyoke House, erected by the President and Fellows in 1870-71, at a cost of \$120,000, contains 50 suites of rooms. It is situated at the corner of Massachusetts Avenue and Holyoke Street; its lower floor is occupied by stores.

Dane Hall, built with \$7,000 given by Nathan Dane, of Beverly, of the Class of 1778, a delegate to the Continental Congress, was completed in 1832; but when Matthews Hall was built, Dane Hall was moved a short distance south of its original site. The Law School occupied the building until 1883; then it removed to Austin



GRAYS HALL.



MATTHEWS HALL.

Hall. In 1882 certain rooms were given over to the Harvard Coöperative Association, which still occupies them. Other rooms are now used for lectures and for the Psychological Laboratory; one room contains the Musical Library of about 200 volumes. In 1845, and again in 1891, Dane Hall was enlarged.

The Psychological Laboratory, founded in 1891, occupies the second floor of Dane Hall, and consists of ten working rooms and one large lecture room. It is devoted chiefly to original research work in all fields of experimental psychology, and, secondarily, to courses for beginners in psychology; its equipment furnishes at the same time the material for the demonstrations in the psychological lecture courses. The collection of apparatus, which represents a value of about \$10,000, may be classified in five groups: (1) apparatus for the study of centripetal processes, especially sensations; (2) apparatus for the study of centrifugal processes, especially actions; (3) apparatus for the study of central processes, especially ideas; (4) apparatus for the demonstration of the physiological processes which underlie mental life; (5) the technical outfit.

The *first* group contains the collection of instruments for the study of seeing, hearing, and touching. In the service of the optical investigations two rooms are fitted up as dark rooms, equipped with the heliostates and with instruments for the study of color-sensations. Most of the acoustical equipment was furnished by König (Paris) and Appunn (Hanau). The *second* group contains among its means for studying the centrifugal processes, such as emotion, volition, action, the instruments for the time measurement of psychical processes and for the



COLLEGE HOUSE.



HOLYOKE HOUSE.

registration of expression. Instruments of the laboratory belonging to this group are the chronoscopes and the chronographs, the kymographs and registering tuning-forks, the pendulum instruments and the control hammer, the pneumographs and sphygmographs, the plethysmographs and ergographs, the electric keys and the chain reaction apparatus, etc. The apparatus of the *third* group is employed in the study of the ideas and their associations, of memory and apperception, of space and time, and of attention and feeling. The work on association, space sense, and aesthetic feelings has, during late years, been especially prominent and has demanded many new instruments of special construction. The *fourth* group contains models of brain and sense organs, mostly with detachable parts; microscopes, with histological nerve preparations; apparatus demonstrating the functions of eye and ear. The *fifth* group includes a regular workshop, with carpenter's bench, electrical outfit with batteries, motors, induction coils, galvanometers, etc.; chemical and mechanical, anatomical and physiological outfits; and a full line of all material for preparing the apparatus for the varying purposes of new investigations.

Each room is in electrical connection with every other room, and supplementing the batteries of the laboratory, the current from the street wires supplies the building with light and motor power. The reference library, which is at the disposal of all using the laboratory, contains full sets of the leading psychological and philosophical magazines and a collection of philosophical, psychological, and physiological handbooks and monographs. Large charts of the nervous system, pictures of psychologists, and



DANE HALL.



WADSWORTH HOUSE.

diagrams showing optical illusions, etc., cover the walls of the rooms. The results of the investigations made in the laboratory have been published mostly in the "Psychological Review."

Wadsworth House was built with £1,000 granted by the General Court of Massachusetts (supplemented, however, by other funds, as the Legislature refused to grant enough to finish the work) in 1726, a year after President Wadsworth's inauguration. Inside, it was not completed until the next year; it cost altogether about £1,800. It is the oldest building, except Massachusetts Hall, now standing. At first called the President's House, it was occupied by successive presidents until 1849. For a short time in 1775, until more spacious quarters were obtained in the old Vassall House, now known as Craigie House, the residence of Longfellow, it was the headquarters of Washington and Lee; and undoubtedly some of the first despatches sent by Washington to Congress, to Richard Henry Lee, and to General Schnyler, were written in this house. Towards the close of the century the building was enlarged, and after 1849 it was used as a dormitory and boarding house for students. It is at present occupied by the Bursar, the Preachers to the University, and a few students.

Boylston Hall was erected in 1857 with a fund bequeathed by Ward Nicholas Boylston, which was subsequently largely increased by subscription. The building was enlarged by the addition of a third story in 1870, and the accommodations were still further extended in 1891 and 1895. It is occupied by the Department of

Chemistry of Harvard College, the Lawrence Scientific School, and the Graduate School.

On the entrance floor are four laboratories. — The laboratory for quantitative analysis (Room 2), with 44 desks, is provided with hoods, apparatus for electrolysis, and water-baths of novel construction. In the weighing-room adjoining this laboratory is a collection of 203 new compounds and 50 other substances illustrating the original work of the department before the year 1893. The laboratory for inorganic research (atomic weights) is entered through the laboratory for quantitative analysis. It has accommodations for 8 students.

The laboratory for physical chemistry (Room 4) contains places for 12 students. The laboratory for elementary chemistry (Room 5) contains 64 desks and can accommodate 128 students.

In the basement is a laboratory with 116 desks (232 students) for descriptive inorganic chemistry.

On the second floor are the lecture rooms and the rooms for chemical apparatus and specimens (Rooms 7, 9, 10). A selected collection of specimens is exhibited in two cases in the entry for the use of the class in inorganic chemistry. Attention is called to the series of salts of neodymium and of praseodymium. The library (Room 8) is also on this floor. It contains the more important chemical text-books and periodicals (1600 volumes and over 5000 dissertations) to be used for consultation only; it is supplementary to the larger collection of books on chemistry in Gore Hall.

On the third floor is the laboratory for organic chemistry (Room 11) with desks for 25 men studying elementary chemistry, and for 9 students of research. On



BOYLSTON HALL.



SEVER HALL.

the same floor is the laboratory for qualitative analysis with 98 desks (196 men), which also accommodates the overflow of the class in descriptive inorganic chemistry. The method of dispensing sulphuretted hydrogen will be of interest to teachers of chemistry.

The storerooms for apparatus and chemicals are in the garret. Electricity of various voltages, gas under constant pressure, and live steam are supplied to those rooms in which they are needed. Parts of the building are lighted by electricity; the ventilation is obtained by fans worked by electric motors.

Sever Hall, completed in 1882 at a cost of about \$115,000, is named for Mrs. Ann E. P. Sever, who left \$100,000 to the College. It was designed by Henry Hobson Richardson, of the Class of 1859. It contains 37 rooms, used chiefly for recitations and lectures. Here, too, are the departmental libraries of English, French, German, Sanskrit, Semitic, and Romance Languages.

The Child Memorial Library (Room 2). — This library was founded by a subscription among the friends and the former pupils of Professor Francis James Child to perpetuate the memory of his services to the University and to learning. This subscription resulted in a sum of nearly \$11,000, the income of which is spent under the direction of the Department of English for the purchase of books relating to the study of English. There are at present in the library 2105 volumes.

With the Child Memorial Library are kept the *Library of the Department of Germanic Languages and Literatures*, numbering 400 volumes, and the *Library of Romance Philology*, numbering 500 volumes.

Library of the Division of Semitic Languages and History (Room 7). — This library was established by the generosity of Jacob H. Schiff, of New York; a few gifts have been received from other persons. It now contains about 800 volumes and a number of pamphlets. It is intended to supply students in Semitic languages and history with the requisite aids for special investigation; as far as possible the purchase of text-books and of books found in the College Library is avoided. The use of the library is restricted to members and students of the department. A sum of money recently given by Mr. Schiff makes it possible to fill existing gaps, and especially to complete the collection of works relating to Rabbinical and Talmudical literature.

Library of the Department of Indo-Iranian Languages (Room 15). — The collections of the Sanskrit class-room library comprise some 500 volumes on the religions, the antiquities, and the literature of India, in part supplementing, and in part duplicating the collection of the College Library. Here are also kept some 500 manuscripts of Sanskrit and Prakrit texts, purchased for the University by Professor Lanman in India. These, with about as many more given to the University by Dr. Fitzedward Hall, of the Class of 1846, form the largest collection of Indic manuscripts in America.

This library also contains maps and many large, mounted photographs of Indic antiquities and scenery. From these pictures have been made nearly 250 lantern-slides, illustrating especially subjects concerning the archaeology of India, and this collection of slides is from time to time increased. The room contains three cases with over 340 electrotype reproductions, made from

the originals in the British Museum, of coins struck in India before the Mohammedan invasion of 1000 A.D.

Here, also, is placed the Siamese edition of the Sacred Books of the Buddhists, in 39 volumes, made by the King of Siam to commemorate the 25th anniversary of his accession to the throne, and by him given to the University.

Library of the Department of French (Room 21). — This library is intended for the use of instructors and of students in the higher French elective courses and is strictly a reference library. It comprises some 2000 volumes, and is being steadily increased. The books are classified, and a card catalogue further facilitates consultation.

A collection of photographic reproductions, containing portraits of historical and literary celebrities, of historical scenes and buildings, of important paintings, and views of Paris and other cities of France, has been presented to the department by the Cercle Français. Many of these photographs have been framed and hung in Sever 19, 21, and 23.

The Fine Arts Drawing Room (Room 37). — This room is provided with working tables for nearly 100 students. In it is kept a considerable collection of drawings, photographs, engravings, and casts for class use. Among the drawings are a few original ones by Prout and Ruskin, and among the photographs are several from important drawings by Viollet-le-Duc.

Appleton Chapel, the second building belonging to the University designed solely for religious worship, was the gift of Samuel Appleton of Boston, who left

\$200,000 to the College with the direction that one-fourth of it should be spent for a chapel. It was built at a cost of nearly \$68,000, and was completed in 1858. In the interior a good many changes have been made: the pulpit, at first on the northern side, is now at the eastern end; the roof proved defective and had to be altered; the galleries are of recent date. The later improvements are due to the liberality of the children of Nathan Appleton, of Boston. Here are held the daily religious services of the University.

In 1886 compulsory attendance at the chapel was abandoned; and the management of the religious services of the University was entrusted to a Board of Preachers, which was established by the following vote of the President and Fellows, May 10, 1886:—

“That five preachers to the University be annually appointed by the President and Fellows, with the concurrence of the Board of Overseers, who, in conjunction with the Plummer Professor of Christian Morals, shall arrange and conduct the religious services of the University.” The Board of Overseers concurred in this vote on May 12, 1886, and in 1892 it was incorporated in the Statutes of the University.

On June 14, 1886, on the unanimous recommendation of the Preachers and the Plummer Professor, the President and Fellows voted “That the statute numbered 15, concerning religious exercises, be amended by striking out the clause, “at which the attendance of the students is required”; and on June 16 the Board of Overseers concurred in this vote. Attendance at the religious services of the University was thus, by the advice of those who conduct the services, made wholly voluntary.

The services in the University Chapel are directed by the Board of Preachers as follows: Each conducts daily morning prayers, which are held at a quarter before nine o'clock, for about three weeks in each half-year, and each preaches on four Sunday evenings. The preacher conducting morning prayers is in attendance every morning during his term of duty at Wadsworth House 1, and is at the immediate service of any student who may desire to consult him. On Thursday afternoons from November till May, vesper services are held in the University Chapel. These services are brief, largely musical, with an address from one of the Preachers. Services on Sunday evenings are conducted by preachers of various communions by invitation of the Board of Preachers. The music at all services is by the College choir, a full male chorus of 25 sopranos and altos, and 16 tenors and basses.

There have served on the Board of Preachers since its foundation in 1886:—

EDWARD EVERETT HALE, D.D.
 ALEXANDER MCKENZIE, D.D.
 THEODORE C. WILLIAMS, D.B.
 GEORGE A. GORDON, D.D.
 PHILLIPS BROOKS, D.D.
 WILLIAM LAWRENCE, S.T.D.
 BROOKE HERFORD, D.D.
 HENRY VAN DYKE, D.D.
 LYMAN ABBOTT, D.D.
 CHARLES CARROLL EVERETT, D.D.
 WASHINGTON GLADDEN, D.D.
 LEIGHTON PARKS, D.D.
 J. ESTLIN CARPENTER, A.M.
 E. WINCHESTER DONALD, D.D.

SAMUEL McCHORD CROTHERS, A.B.

SIMON J. MCPHERSON, D.D.

JOHN H. VINCENT, D.D.

SAMUEL D. McCONNELL, D.D.

PHILIP S. MOXOM, D.D.

GEORGE HARRIS, D.D.

GEORGE HODGES, D.D.

WILLIAM DEWITT HYDE, D.D., LL.D.

WILLIAM H. P. FAUNCE, A.M., D.D.

WILLIAM WALLACE FENN, D.B.

The William Hayes Fogg Art Museum is situated in the College Yard, facing Broadway, nearly opposite Memorial Hall. It is a fire-proof building of Indiana stone, erected at a cost of \$150,000, and completed in the year 1895. This Museum was founded by Mrs. Elizabeth Fogg, of New York, in memory of her husband, whose name it bears. Mrs. Fogg bequeathed to the President and Fellows for this purpose the sum of \$220,000. Out of the balance of this sum, with its accrued interest, after paying the cost of the building, the expenses of the first equipment of the Museum were met, and the remainder (about \$50,000) is reserved as a fund to defray a part of the cost of maintenance and administration.

The building is of two stories, having a lecture-room, with a seating capacity of about five hundred, attached. The ground floor is divided into a large hall and five smaller rooms. In the main exhibition hall are gathered casts of some of the finest examples of Greek and Greco-Roman sculpture, illustrating the work of all periods of Greek art. Among the important objects represented are the colossal statue of Apollo from the Temple of



APPLETON CHAPEL.



THE WILLIAM HAYES FOGG ART MUSEUM.

Zeus at Olympia; a large portion of the frieze and the pediment sculptures of the Parthenon; the Hermes of Praxiteles; the Venus of Melos; various sculptures lately found at Epidaurns; a colossal relief from the Arch of Trajan at Beneventum; and others. In the middle west room is a small number of casts from Egyptian and Assyrian sculptures; in the southwest room a classified collection of electrotypes from Greek and Roman coins and a few fine Greek vases; in the east rooms are a few casts from Mediaeval sculptures, and a considerable number of casts from sculptures of the Italian Renaissance. Among these last are the beautiful recumbent statue from the tomb of Ilaria del Carretto by Jacopo della Quercia, the St. George of Donatello, the David of Verrochio, and several of the finest works of Michael Angelo—including two figures from the Medicean tombs, the Pietà of Rome, and the Madonna of S. Lorenzo.

On the walls of the corridor of the upper floor a large number of photographs from drawings by the Italian and German masters of the Renaissance will be found, together with a number of solar enlargements of photographs from Egyptian, Greek, and Mediaeval architectural monuments. The large upper gallery is at present used for the exhibition, by relays, of photographs from works of art of various schools and epochs. The west rooms on this floor are devoted to the storage of photographs and to the work of administration.

The collection of photographs now numbers upwards of 25,000. It affords a wide range of illustrations of the Fine Arts of all epochs, and all countries, including architecture, sculpture, and painting. These photographs, which are kept in dust-proof cases, are conveniently clas-

sified and catalogued for use. They are always accessible to members of the University, and other suitable persons, on application to the Director's assistants. Large tables are provided for convenient examination of the photographs, and conveniences for tracing, copying, and note-taking are afforded.

In the larger east room on this floor, and in a part of the great gallery, are deposited the Gray and the Randall collections of engravings, which together include about 30,000 prints. The Gray Collection was bequeathed to Harvard College, with provision for its increase and maintenance, by Francis Calley Gray, of the Class of 1809. It is rich in prints from the works of the great early German and Italian wood and metal engravers and etchers; and contains many specimens of later forms of engraving, including numerous examples of more modern work. This collection is exhibited by relays in glazed dust-proof cases; and access to the prints in the storage cases may always be had, under suitable regulations, on application to the Director or his assistants.

The Randall Collection was given to the College in the year 1892 by Miss Belinda L. Randall in accordance with the wishes of her brother, John Witt Randall, of the Class of 1834, together with the sum of \$30,000 to establish a fund, the income of which is to be used, as far as it may be needed, for the care and preservation of the prints; any surplus income may be used at the discretion of the President and Fellows for the general purposes of "the department of Engravings and allied branches of the Fine Arts." This large collection, gathered by Mr. Randall to illustrate the history of the art of engraving, contains some very important prints.

The Randall Collection is accessible under the same regulations which apply to the Gray Collection.

Memorial Hall and Sanders Theatre.— In voting to accept this building, the President and Fellows took occasion to say of it that it was “the most valuable gift which the University has ever received, in respect alike to cost, daily usefulness, and moral significance.” The daily usefulness of the building is chiefly due to its western end, which is used as a dining hall for students; the eastern end is the principal place of assembly on occasions of academic ceremonial; the moral significance of the whole is set forth especially in the transept, which one enters first.

Sanders Theatre, as the eastern end is called, is named for Charles Sanders, of the Class of 1802, whose gift it was. The dining hall and the transept were built by a committee of the alumni, with funds given by numerous graduates and friends of the University, as a memorial to the sons of Harvard who fought for the preservation of the Union, and especially to those who fell.

At a meeting of graduates in Boston, in May, 1865, a committee of eleven was appointed to consider the subject of a permanent memorial. They reported at the next Commencement in favor of a memorial hall. A committee of fifty was named, with full power to act. Charles Greely Loring, of the Class of 1848, was made chairman, and many distinguished gentlemen were among his associates. The plan of a memorial hall, providing a meeting place for the alumni, a dining hall for the students, and a commemorative monument to the soldiers of Harvard, was



MEMORIAL HALL.

adopted; William Robert Ware, of the Class of 1852, and Henry Van Brunt, of the Class of 1854, were appointed architects; and a building committee and a committee on finance were appointed to carry out the work. The old "Delta," a play ground, was secured for a site. The corner stone was laid October 6, 1870; the dining hall and the memorial vestibule were finished in the summer of 1874; Sanders Theatre was first occupied Commencement Day, 1876. The whole building was transferred to the President and Fellows in July, 1878. The total cost up to that time was \$368,482. Many additions and adornments have since been added by classes, individual graduates, and friends. The extreme length of the building is 305 feet; the width through the axis of the transept is 113 feet; the tower is 190 feet high. The clock in the tower is the gift of the Class of 1872, and was placed there in 1897. On the exterior, at the east end, are busts of seven orators — Demosthenes, Cicero, St. Chrysostom, Bossuet, Pitt, Burke, and Webster, all executed in sandstone by John Evans, of Boston; at the west end, in the cloister porch, are a marble statue of President Everett, a bronze bust of President Walker, and a tablet erected to the memory of Edward Augustus Wild, of the Class of 1844, Brigadier General, United States Volunteers. The iron gates of the cloister were the gift of a member of the Class of 1871. Inscription:

C · A · GOODNOW

A · B · 1871 · FORES · SUA · PEC · F

The inscriptions on the outside of the building are as follows :

The dedicatory inscription, beginning above the south entrance to the transept and ending above the north entrance, is

MEMORIAE · EORVM
QVI · HIS · IN · SEDIBVS · INSTITVTI
MORTEM · PRO · PATRIA · OPPETIVERVNT
VT · VIRTVTIS · EXEMPLA
SEMPER · APVD · VOS · VIGEANT
SODALES · AMICIQVE · POSVERVNT

Which may be translated :

In memory of
the men trained here
who
Gave their Lives for their Country
this Hall is built
by their Classmates and Friends
to the end that Ensamples of True Manhood
be ever in honor among you

The dates 1861 and 1865 are inscribed on the south front, though they form no part of the dedicatory sentence.

Above the great west window are the words HVMANITAS · VIRTVS · PIETAS, and below it: AEDIFICATA · ANN · DOM · MDCCCLXXI · ANN · COLL · HARV · CCXXXV

In the interior of the transept, above the wainscoting, the two rising to a height of 24 feet, are marble tablets inscribed with the names of those students and graduates

who fell in the war for the Union. Of these, 97 had been in Harvard College, 17 in the Medical School, 13 in the Law School, 6 in the Scientific School, 2 in the Divinity School, and 1 in the Astronomical Observatory. The dates of their deaths and the places where they fell are also given. Above the tablets are various inscriptions, as follows:—

On the east wall, in the centre:

THIS HALL
COMMEMORATES THE PATRIOTISM
OF THE GRADUATES AND STUDENTS OF THIS UNIVERSITY
WHO SERVED IN THE ARMY AND NAVY OF THE UNITED STATES
DURING THE WAR FOR THE PRESERVATION OF THE UNION
AND UPON THESE TABLETS
ARE INSCRIBED THE NAMES OF THOSE AMONG THEM
WHO DIED IN THAT SERVICE

On the east wall near the south entrance, from Cicero,
Philippics, 14, 34:

OPTIMA · EST · HAEC · CONSOLATIO
PARENTIBVS · QVOD · TANTA · REIPVBLICAE · PRAESIDIA · GENVERVNT
LIBERIS · QVOD · HABEBVNT · DOMESTICA · EXEMPLA · VIRTVTIS
CONIVGIBVS · QVOD · IIS · VIRIS · CAREBVNT
QVOS · LAVDARE · QVAM · LVGERE · PRAESTABIT

Translation: This is the best comfort unto their parents, that they have begotten such strong defences of the Republic, unto their children that they shall have of their own kindred ensamples of true manhood, unto

their wives that they shall be widows of husbands fitter for words of eulogy than for weeds.

At the other end of the east wall, from the Vulgate version of St. Luke, 17, 33 :

QVICVNQVE · QVAESIERIT · ANIMAM · SVAM
SALVAM · FACERE · PERDET · ILLAM
ET · QVICVNQVE · PERDIDERIT · ILLAM · VIVIFICABIT · EAM

“ Whosoever shall seek to save his life shall lose it ;
and whosoever shall lose his life shall preserve it.”

Below this is the hexameter verse, adapted from Lucretius, 3, 869 :

MORTEM · VITAM · MORS · IMMORTALIS · ADIMIT

That is :

Immortal death hath reft their mortal life away.

On the west wall, proceeding from south to north :

Cicero's version of Simonides's epigram on the Spartans who fell at Thermopylae (*Tusc. Disp.* 1, 101) :

DIC · HOSPES · SPARTAE · NOS · TE · HIC · VIDISSE · IACENTES
DV · SANCTIS · PATRIAE · LEGIBVS · OBSEQVIMVR

Translation :

Tell Sparta, friend, you saw us lying here
Obedient to our country's holy laws.

From Cicero, *Philippics*, 14, 31 :

O · FORTVNATA · MORS · QVAE · NATVRAE · DEBITA
PRO · PATRIA · EST · POTISSIMVM · REDDITA

Translation : O happy death when the debt to Nature
is paid with free choice for one's native land !

Adapted from the *Wisdom of Solomon*, 4. 13 :

CONSVMMATI · IN · BREVI · EXPLEVERVNT · TEMPORA · MVLTA

They, "being made perfect in a short time, fulfilled a
long time."

From Plautus, *Amphitruo*, 649 :

VIRTVS · OMNIBVS · REBVS · ANTEIT · PROPECTO
LIBERTAS · SALVS · VITA · RES · ET · PARENTES
ET · PATRIA · ET · PROGNATI · TVTANTVR · SERVANTVR

Translation :

In sooth, 'tis Courage that surpasseth all :
The watch and ward of freedom, safety, life,
Of fortune, parents, offspring, fatherland.

From Cicero, *Philippics*, 14, 30 :

GRATA · EORVM · VIRTVTEM · MEMORIA · PROSEQVI
QVI · PRO · PATRIA · VITAM · PROFVDERVNT

Translation : With grateful memory to honor them that
have yielded up life for native land.

From Cicero, *Philippics*, 14, 32 :

BREVIS · A · NATVRA · NOBIS · VITA · DATA · EST
AT · MEMORIA · BENE · REDDITAE · VITAE · SEMPITERNA

Translation : A short life hath Nature given unto man ;
but the remembrance of a life nobly rendered up is for
ever and ever.

Last on the west wall :

BRVTORVM · AETERNITAS · SVBOLES
VIRORVM · FAMA · MERITA · ET · INSTITVTA

Adapted from the *Wisdom of Solomon*, 4, 1 :

IMMORTALIS · EST · ENIM · MEMORIA · ILLORVM
QVONIAM · ET · APVD · DEVM · NOTA · EST · ET · APVD · HOMINES

Translation : “ The memorial ” of these “ is immortal :
because it is known with God, and with men.”

Above the small doors in the west wall :

ABEVNT · STVDIA · IN · MORES

From the pseudo-Ovidian *Epistle of Sappho to Phaon*,
and meaning : Our studies breed our habits.

RECTI · CVLTVS · PECTORA · ROBORANT

From Horace, *Odes*, 4, 4, 34, meaning : Right train-
ing is the strength of character.

The great north window in the transept was given by
Martin Brimmer, of the Class of 1849, Fellow of Harvard
College 1877–96, in memory of the sons of Harvard who
fell in the Civil War. It was unveiled on Commencement

Day, 1898. The artist, Sarah Wyman Whitman, writes of it thus: "The design of this window is to commemorate the forces which inspired these heroes. Love of the University is symbolized, at one end of the five lower panels, by the Scholar; and, at the other end, love of Country, by the Soldier. Above these are four cherubs, holding tablets inscribed with the heroic virtues (*Amor, Honor, Virtus, Patientia*); and higher still are angelic figures of praise; while the design culminates in a Rose, wherein the ascription of Glory to God is typified in color, with a choir of angels circling round the centre."

The inscriptions and subordinate scenes in the design are as follows:

On the scrolls held by the angels on either side of the Rose, from *Psalms*, 115, 1: NON · NOBIS · DOMINE · NON · NOBIS · SED · TVO · NOMINI · GLORIA · SIT. Translation: "Not unto us, O Lord, not unto us, but unto thy name give glory."

On the panel next the Scholar, a picture of Sir Philip Sidney giving the cup of water to the soldier, with a temporary inscription, to be replaced later: NIHIL · EST · PRAECLARIUS · QVAM · DE · RE · PVBLICA · BENE · MERERI, from Cicero. Translation: There is nothing so honorable as to deserve the gratitude of the Republic.

On the panel next the Soldier, a picture of St. Martin giving his cloak to the beggar. The accompanying inscription contains the saying of St. Martin when, at a crisis in his life, he dedicated himself anew to the service of God. The Latin words are a translation by Mr. Brimmer from the passage in a French life of the Saint: SI · TIBI · OPVS · EST · MEO · LABORE · NON · RECUSO · LABOREM. In English: "If my labor can serve thee, I will never withhold it."

The inscription on the middle panel is :

SALVE · QVISQVIS · ADES
 EORVM · ADSPICIS · NOMINA · HARVARDIANORVM
 QVI · FERVIDI · ADVLESCENTES · SEV · PLENIORE · VIRI · CONSILIO
 VT · INTEGR · MANERET · RES · PVBLICA
 OPPETIVERVNT · MORTEM
 QVAE · MORIENTES · CONSERVABANT · ILLI
 EA · TV · COLITO · DVM · VIVIS
 VT · HOMINES · APVD · NOS · MAGIS · SINT
 LIBERI · BEATI · CONCORDES

Translation : Greeting, whoever thou art. Thou see'st the names of the men of Harvard who in ardent youth or manhood's riper resolution laid down their lives that the Republic might live. Pattern thy life by the principles they maintained in death, to make men freer, happier, and more united.

At the bottom of the window :

MARTINVS · BRIMMER · ALVMNVS · SOCIVS · DONVM · DEDIT,
 that is, "Martin Brimmer, Alumnus and Fellow, gave this gift." The two dates, 1829 and 1896, are those of the birth and death of Mr. Brimmer.

In the south window are the names of the Virtues.

From the gallery above the door leading to the dining hall hang two flags, the gift of the nation to Dorothea Dix — a gift which she herself chose — for her services during the War. These flags she bequeathed to the University.

From the transept two doorways lead to the floor of Sanders Theatre, and two stairways to the balcony and the gallery. The Theatre is polygonal; the stage is at the

west end; and the seats rise towards the eastern walls. The seating capacity is about 1300. Above the stage is a canopy, serving as a sounding board, and a small gallery for musicians. The inscription on the wall above the gallery is as follows:

HIC · IN · SILVESTREBVS
 ET · INCVLTVS · LOCIS
 ANGLI · DOMO · PROFVGI
 ANNO · POST · CHRISTVM · NATVM · CIO · IO · C · XXXVI
 POST · COLONIAM · HVC · DEDVCTAM · VI
 SAPIENTIAM · RATI · ANTE · OMNIA · COLENDAM
 SCHOLAM · PVBLICE · CONDIDERVNT
 CONDITAM · CHRISTO · ET · ECCLESIAE · DICAVERVNT
 QVAE · AVCTA · IOHANNIS · HARVARD · MVNIFICENTIA
 A · LITTERARVM · FAVORIBVS · CVM · NOSTRATIBVS · TUM · EXTERNIS
 IDENTIDEM · ADIVTA
 ALVMNORVM · DENIQUE · FIDEI · COMMISSA
 AB · EXIGVIS · PERDVCTA · INITIIS · AD · MAIORA · RERVM · INCREMENTA
 PRAESIDVM · SOCIORVM · INSPECTORVM · SENATVS · ACADEMICI
 CONSILIIS · ET · PRVDENTIA · ET · CVRA
 OPTVMAS · ARTES · VIRTVTES · PVBLICAS · PRIVATAS
 COLVIT · COLIT

QVI · AVTEM · DOCTI · FVERINT · FVLGEBVNT · QVASI · SPLENDOR · FIRMAMENTI
 ET · QVI · AD · IVSTITIAM · ERVDIVNT · MVLTO
 QVASI · STELLAE · IN · PERPETVAS · AETERNITATES

Translation :

Here in the woods and wilds
 English Exiles
 in the year of our Lord 1636,
 the sixth after the settlement of the Colony,
 holding that wisdom was to be cherished above all else,
 founded a College at the public cost
 and dedicated it to Christ and his Church.
 Upraised by the generosity of John Harvard,
 aided also by patrons of learning both here and abroad,
 entrusted finally to the charge of its alumni,
 from small beginnings guided to a growth of greater powers
 by the judgment, foresight and care,
 of its Presidents, Fellows, Overseers, and Faculties,
 it has ever cherished the best arts & virtues, public & private,
 and cherishes them now.

The rest of the inscription is from the book of Daniel, 12, 3 : “ And they that be wise shall shine as the brightness of the firmament; and they that turn many to righteousness as the stars for ever and ever.”

In the panel at the north side of the gallery is the donor's inscription :

CAROLVS · SANDERS

A · B · ANNI · CIO · IO · CCC · II
THEATRVM
ALVMNIS · ACADEMICIS
SVA · PEC · F

Translation : Charles Sanders, A.B. 1802, built this theatre for the Alumni at his own cost.

In the south panel is the date :

AEDIFICATVM · ANNO · POST · CHR · NAT

CIO · IO · CCC · DXXVI
POST · POP · AMER · LIBERATVM

C

Translation : Built A.D. 1876, in the one hundredth year of American Independence.

Story's marble statue of President Quincy, at the side of the stage, is the only piece of statuary in the Theatre. On the basement floor there are large dressing rooms.

The dining hall, which occupies the long western portion of the building, is entered from the centre of the transept. Another door, at the north end of the transept, leads into the Auditor's office; thence a stairway leads to a gallery overlooking the dining hall. From this gallery one can pass into rooms set apart for the various administrative offices, into a gallery overlooking the transept, and by a stairway into the tower.

The dining hall is 149 feet long, 60 feet wide, and, to the ridge, 66 feet high. More than 1100 students, mem-

bers of the Dining Association, regularly take their meals here. A board of directors, chosen by the members, administer, under certain regulations of the President and Fellows, the affairs of the Association.

Inside the hall are busts and portraits of alumni and benefactors, each marked with the name of the subject and the artist. The great western window shows the armorial bearings of the nation, the state, and the University. The stained glass windows on the north and the south are all memorial windows, given chiefly by various classes. Beginning on the left as one enters, the figures in the windows and the inscriptions are as follows :

1. This window is yet unfilled.

2. Window of the Class of 1859 ; by John La Farge. Subject : Cornelia, mother of the Gracchi, showing her sons to her sister who is playing with her jewelry. Inscription : CORNELIA · MATER · GRACCHORVM. Then follow Cornelia's famous words : HAEC · ORNAMENTA · MEA · SVNT — “ These are *my* jewels.”

3. Davis Memorial Window ; by Henry Holliday ; given by the Davis family. Figures : Columbus and Blake. Inscriptions : At the top, Port Royal — Memphis — Fort Pillow. In the left hand window, Columbus, Born 1442, Died 1506. In the right hand window, Blake, Born 1599, Died 1657. The memorial inscription proper, occupying the lower part of both windows, is as follows :

MEMORIAE · CAROLI · HENRICI · DAVIS · PRAEF · NAV · VIRI
BELLI · ET · PACIS · ARTIBVS · PRAESTANTIS · NATVS · EST
A · D · XVII · K · FEB · A · CIO · IO · CCC · VII · MORTVVS
A · D · XII · K · MART · A · CIO · IO · CCC · LXXVII · ALVMNVS

A · CIO · IO · CCC · XXV · LL · D · CIO · IO · CCC · XLVIII · PER
 LV · ANNOS · SINGVLAREM · FIDEM · PRVDENTIAM · VIRTVTM
 AD · REIPVBLICAE · VTILITATEM · ET · SALVTM · CONTVLIT
 HVIC · OB · REM · BENE · NAVIBVS · GESTAM · GRATISSIMVS
 VERBIS · GRATIAS · EGIT · SENATVS · POPVLVSQVE · AMERICANVS

Translation: To the memory of Charles Henry Davis, Rear Admiral in the Navy, eminent in the arts of war and of peace. He was born January 16, 1807; died February 18, 1877; A.B. 1825; LL.D. 1868. During 55 years he served and safeguarded the Republic with singular loyalty, foresight, and valor. He received the grateful thanks of Congress and the American people for his distinguished service in our fleets.

4. Window of the Class of 1844; by Henry Holliday. Figures: Dante and Chaucer. Inscriptions: Dante, Born 1265, Died 1321. Chaucer, Born 1328, Died 1400. Below: MEMORIAE · EORVM · QVI · HIS · EX · SEDIBVS · A · CIO · IO · CCC · XLIII · EGRESSI · DE · COLLEGIO · CONDIPCVLISQVE · BENE · SVNT · MERITI · SODALES · POSVERVNT

Translation: Erected by their classmates to the memory of the members of the Class of 1844 who have earned the gratitude of the College and of their fellow students.

5. Window of the Class of 1857; by Cottier & Co., London. Subjects: Sir Philip Sidney, and, below, the battle field of Zutphen; Epaminondas, and, below, a mother giving her son a shield. Inscription: In Memory of those Classmates who fell in the War. Erected A.D. 1879.

6. Window of the Class of 1860; by John La Farge. Subject: A battle Scene. Inscription: IN MEMORIAM MDCCCLX.

7. Window of the Class of 1877; by W. J. McPherson. Figures: Charlemagne and Sir Thomas More.

8. Window of the Class of 1854; by Frederic Crowninshield. Figures: Sophocles and Shakspeare. Inscription under the figure of Shakspeare: "Had I a dozen sons, I had rather I had eleven die nobly for their country than one voluptuously surfeit out of action." Below both figures: In memory of our classmates who fell in defence of the Union.

9. This window is yet unfilled.

Crossing to the north side of the hall and beginning at the west end:

1. Window of the Class of 1875: by C. E. Mills. Figures: La Salle and Marquette.

2. This window is yet unfilled.

3. Window of the Class of 1861; by F. D. Millet. Figures: The Student and the Crusader. Below the Student, a college lecture room; below the Crusader, a battle field. Inscription: A · LITTERIS · LAETI · PRO · PATRIA · AD · ARMA. Translation: With light hearts from letters to arms for our country.

4. Window of the Class of 1858; by Cottier & Co. Figures: John Hampden and Leonidas. Inscriptions: under Hampden: Died for the cause of civilization and law, and the self-restrained freedom which is their result. [From a letter of James Jackson Lowell, of this Class, written from the field to some of his classmates. He was mortally wounded in the battle of Glendale, June 30, 1862.] Under Leonidas: As for the chances of life or death neither is welcome without honour or duty, either is welcome in the path of honour and duty. [From a

letter of Henry Lyman Patten, of this Class, to his mother. Five times wounded in battle, he died from the effects of his last wound, September 10, 1864.] Below: Erected Anno Domini 1882.

5. Window of the Class of 1863; by Frederic Crowninshield. Figures: Andromache and Hector.

6. Window of the Class of 1880; by John La Farge. Figures: Vergil and Homer.

7. Window of the Class of 1879; by Frederic Crowninshield. Figures: Pericles and Lionardo da Vinci. Inscriptions: under Pericles, from his speech in Thucydides, 2, 63: τῆς τε πόλεως ὑμᾶς εἰκὸς τῷ τιμωμένῳ ἀπὸ τοῦ ἄρχειν, ὧπερ ἅπαντες ἀγάλλεσθε, βοηθεῖν. Translation: You are bound to support our country in her imperial dignity in which you all take pride. Under Lionardo, from his *Trattato*, book 2: Il tesoro per se non lauda il suo cumulatore dopo la sua vita come fala scienza, la quale sempre e testimonia e tromba del suo creatore. Translation (from a Class Report): "Riches in themselves bring no glory to their possessor at his death, as knowledge does, which is an everlasting witness and herald to its creator."

8. Window of the Class of 1878; by F. D. Millet. Figures: Warren, and below, a medical lecture room; Eliot, and below, Eliot preaching to the Indians.

9. Window of the Class of 1874; by Edward Emerson Simmons of the Class of 1874. Figures: Themistocles and Aristides, typifying the reconciliation of the North with the South. Inscription, from Herodotus, 8, 79: ὥς δὲ ἐξῆλθε οἱ Θεμιστοκλῆς, ἔλεγε Ἀριστείδης τάδε· ἡμῶς στασιάζειν χρέον ἐστι εἰ ἐν τεῷ ἄλλῳ καιρῷ καὶ δὴ καὶ ἐν τῷδε περὶ τοῦ ὁκότερος ἡμῶν πλέω ἀγαθὰ τὴν πατρίδα

ἐργάσεται. Translation: And when Themistocles came out to him, Aristides said: At all times and chiefly now this should be our rivalry—which of us shall do most good to our country.

The Statue of John Harvard, in the Delta, west of Memorial Hall, was designed by Mr. Daniel C. French. It was the gift of Samuel James Bridge, and was erected in 1884.

The Lawrence Scientific School Building.—

In 1847, Abbott Lawrence of Boston gave to the College, for the promotion of “education bearing upon the great industries of the country,” the sum of \$50,000. With half of this money the laboratory and the dwelling-house connected therewith were built in 1848–49, with the intention of later adding to them. It was found, however, that a fund would be needed for the Professorship of Engineering, and the other half was accordingly set aside for this purpose.

The School founded in this way by Abbott Lawrence was for 40 years a separate establishment in the University, governed by a distinct Faculty; but in 1888 it was, along with the College and the Graduate School, placed under the Faculty of Arts and Sciences. The instruction given in the Scientific School has for its main purpose a professional training in the several branches of applied or industrial science, leading to the degrees of Bachelor and Master of Science. This instruction is, as regards courses, intimately blended with that provided for students seeking the degree of Bachelor of Arts, Master of Arts, Master of Science, Doctor of Philosophy, or Doctor of Science. The difference between the training

of the College and that of the Scientific School is that in the latter each student's course of study is, within certain limits, prescribed. The School has now no separate domicile. Its work is done in the various buildings at the service of the Faculty which cares for it. In this comingling of the interests of its students with those of the students in the College, the School differs from like schools affiliated with other universities.

The Engineering Library. — This library, located on the second floor of the building, contains more than 5000 volumes on engineering subjects; the reading room connected with it is supplied with all of the important foreign and American engineering periodicals.

An Instrument Room on the first floor contains surveying instruments, including a number of transits, levels, solar compasses, surveyor's compasses, plane tables and alidades, and levels, rods, tapes, and chains.

The Electrical Engineering Laboratory. — Previous to 1891, all of the instruction in experimental electricity was given in the Jefferson Physical Laboratory; but in the Fall of that year the small, two-story annex in the rear of the Lawrence Scientific School Building was erected and equipped, the upper floor as a shop for the repair and construction of apparatus, and the ground floor as a dynamo laboratory. Since then the equipment has grown steadily, and several rooms in the basement of the main building are now utilized.

The Dynamo Laboratory contains besides the 15 kilowatt, 500 volt motor, which supplies power to the shop and laboratory, a considerable variety of direct and alternating current generators and motors, with an average capacity of 5 or 6 kilowatts, all belted to the line shaft

by means of friction clutches; lamp banks and rheostats of various kinds for the absorption of power, aggregating a capacity of about 30 kilowatts; two sets of apparatus for the rapid delineation of alternating current and electromotive force curves; transformers, condensers, inductive and non-inductive resistances, and other apparatus for alternating current experiments.

Five of the above mentioned dynamos and motors, three of the transformers, and some of the auxiliary apparatus were designed by students and constructed in the shop. A three-phase motor so designed is supplied with several armatures (or secondaries), arranged to show the effect of varying the secondary resistance and inductance and the nature of the secondary winding. One of transformers, designed for insulation tests, has a secondary electromotive force of 40,000 volts, and a capacity of 15 kilowatts.

The thirty-inch lathe in the shop, operated by means of a motor in the headstock, is a successful example of the direct application of electric motors to the operation of slow speed machinery, and exhibits one or two novel features. It was designed by students.

Two circuits, a 500 volt direct current power circuit and a 1000 volt alternating lighting circuit, from the Cambridge Electric Light Company, are available for power, lighting, and experimental work.

The Instrument Room contains a large variety of portable measuring instruments such as ammeters, voltmeters, and wattmeters; one pair of Weston laboratory standard instruments, used as secondary standards for the rapid calibration of ammeters, voltmeters, and wattmeters; electro-dynamometers; Kelvin composite balance and

electrostatic voltmeters; and apparatus for resistance measurements.

The Storage Battery Room contains one battery of thirteen 250-ampere-hour cells, one battery of 104 30-ampere-hour cells, besides a considerable number of portable cells of various sizes. The 30-ampere-hour cells are connected to a 105-point switch, so arranged that any number of the 104 cells may be connected by means of a pair of push buttons in the instrument room to the voltmeter calibrating circuit which leads into the latter place.

The Arc Lamp Room contains a variety of open and closed arc lamps for direct and alternating currents.

The Photometer Room contains a five-meter photometer of the Reichsanstalt pattern, with Lummer-Brodhun screen and accessories for the photometry of arc and incandescent lamps.

This room also contains a ballistic set for the measurement of the magnetic properties of iron and the magnetic leakage of dynamos, and a complete set of cable testing apparatus.

Department of Anatomy, Physiology, and Hygiene. — Two rooms in the east wing of the Lawrence Scientific School are devoted to instruction in physiology and hygiene.

The laboratory on the first floor is devoted to instruction in human physiology and hygiene and to the investigation of problems in hygiene and the physiology of exercise. It is fitted with tables, which can be used for chemical work and for experiments with physiological apparatus. One end of the room is fitted up as a work-shop, with screw-cutting lathe, and the necessary metal and wood-working tools for the construction of apparatus. Most



THE LAWRENCE SCIENTIFIC SCHOOL BUILDING.



THE ROGERS BUILDING.

of the apparatus of the laboratory for use in demonstration, class instruction, and investigation is devised and made to adapt it to the needs of the work. The laboratory contains a collection of physiological apparatus and appliances for hygienic investigation, and apparatus and reagents for physiological and hygienic chemistry; there is, also, a collection of about a thousand photographs and lantern slides, together with charts, maps, and specimens.

The laboratory on the second floor contains a working library and a card catalogue, a hood for chemical work, chemical apparatus, and reagents for special work in hygiene and physiological chemistry, analytical balances, histological apparatus, reagents and preparations, incubator, sterilizer, and other apparatus for bacteriological work. Here, too, is new apparatus for the study of the physiology of exercise, and apparatus for the use of students in courses in physiology.

The Rogers Building, known as the Old Gynasium, was built in 1860 at a cost of \$9,500, \$8,000 of which was given anonymously by a graduate of the University. After the death of the donor his name was made known: he was Henry Bromfield Rogers, of the Class of 1822. At first used as a gymnasium, the building was, after the erection of the Hemenway Gymnasium, used as a storehouse; but in 1894 it was remodelled, and has since been occupied by the Scientific School.

Engineering Laboratory. — This laboratory is occupied entirely with machinery, — apparatus and instruments for giving instruction in the measurement of those quantities with which the engineer has to deal in the investigation

of the properties of materials and the efficiencies of machines and prime movers.

The Steam Engineering plant includes a Manning boiler with feed water heater, several small steam engines, a Wheeler condenser, a steam-driven Sturtevant blower, available for forced draught, a Westinghouse air compressor, and the necessary complement of instruments, such as pressure gauges, indicators, brakes, steam calorimeters, fuel calorimeters, and apparatus for the analysis of coal and of flue gases, the last including an "economizer" which gives a continuous indication of the composition of the gases. An air thermometer, a gauge tester, and an indicator calibrating apparatus are available for purposes of standardisation. The heat engine equipment includes two gas engines, (one of which is convertible into a gasoline engine), air and gas meters, gas calorimeter, special indicators, Hempel gas analysis apparatus, and other instruments.

For Testing Materials the laboratory contains a 200,000 pound Olsen autographic machine capable of testing a 4 foot tension or compression piece, and a 20 foot beam; a 60,000 pound Tieble machine; Keep's cast iron testing machines; a cement testing machine with its accessories; and a number of extensometers, micrometers, and the like.

The Testing of Road Materials is carried on in a small room adjoining the main laboratory and equipped with a Duval abrasion test machine, and a special impact machine.

The Hydraulic Plant includes a duplex Blake pump of capacity of 1000 gallons per minute, supplying water to a closed steel tank or stand-pipe 5 feet in diameter and 25 feet high. Any head up to about 300 feet is obtained

in the stand-pipe by compressing air above the water, is kept constant by means of a variable overflow, and is measured by a mercury column. The discharge from the stand-pipe takes place through an opening to which an orifice, nozzle, or Pelton wheel or other turbine can be connected. Thence the water falls into a large weir tank with adjustable weir, over which it goes to two cast iron weighing tanks, each of about 6000 pounds capacity, and is then discharged into the cistern, which is also the supply well for the pump.

The laboratory contains, further, a machine for investigating the transmission of power by ropes or belts, Thurston's lubricant tester, Emerson's power scales, and other apparatus.

The Architectural Building, on the south side of Jarvis Street, on Holmes Field, contains two drawing rooms, a small lecture room, and a small library. The library has 3360 photographs, selected to illustrate the architectural history of the important European countries, and 180 volumes, largely folios. The plates of many of the volumes have been taken out of their bindings and mounted on cards so that they may more easily be consulted and so that different plates from the same volume may be used simultaneously. They are kept in cases like the photographs. On the walls of the drawing rooms are hung 72 casts, illustrating the classic orders and some of the best detail of Greek, Roman, Gothic, and Renaissance work. Of these the more important are architectural details from the Parthenon, the Erechtheion and the Monument of Lysicrates at Athens; the order of the Temple of Vesta at Tivoli, table stand



THE CAREY BUILDING.



WALTER HASTINGS HALL.

from the house of Cornelius Rufus, Pompeii; friezes from the Lateran Museum; capitals from the church of St. Laumer at Blois and from the triforium of the cathedral of Laon, and several pilasters and friezes of the early Italian Renaissance.

The trustees of the Rotch Travelling Scholarship have lent to the department a number of the *envois* of scholars, carefully and beautifully rendered measured drawings of important European buildings. The Erechtheion at Athens, the Theatre of Marcellus and the Temple of Concord at Rome, the Baptistery at Ravenna, the Ducal Palace at Venice, the Pazzi Chapel at Florence, the Ospedale del Ceppo at Pistoja, the Municipio at Brescia, the gardens of the villa Lante at Bagnaia, the villa of Pope Julius at Rome, the chateaux of Blois and Chenonceaux are among the buildings illustrated in this way. Examples of the work of advanced students at the Ecole des Beaux-Arts at Paris and of students in the department are also hung upon the walls.

The Carey Building, built in 1890-91 at a cost of \$38,000, was the gift of Henry Reginald Astor Carey. When, in 1898, athletic sports were transferred to the Soldiers' Field, this building was devoted to other uses of the University; and the President and Fellows placed in the Athletic Building on the Soldiers' Field a tablet commemorating the gift of Mr. Carey.

Walter Hastings Hall, the gift of Mr. Walter Hastings, of Boston, whose ancestors in direct line for three generations were alumni of the University, was built in 1888-90 at a cost of about \$250,000. It contains 61 suites of rooms.

The Jefferson Physical Laboratory.—In 1881, Thomas Jefferson Coolidge, of Boston, of the Class of 1850, gave \$115,000 to the College for a new physical laboratory, on condition that \$75,000 should be raised by subscription and the income appropriated to its support. The building was finished in October, 1884, and was named the Jefferson Physical Laboratory. All the instruction in physics, by recitations, lectures, and experimental work, to students of Harvard College, of the Lawrence Scientific School, and of the Graduate School, is given in this building, which accommodates the various physical cabinets. The building is 200 feet long and, including the basement, four stories high. In the eastern wing the whole height is divided between a large lecture-room below, capable of holding 400 students, and the great laboratory above. In the central and western portions of the building are three recitation rooms for sections of forty or less; but the principal part of the central and western portions is broken up into a large number of small rooms, where professors, assistants, and advanced students can pursue their separate investigations, and be secured against intrusion, or any disturbance of their instruments. Each room may be reached from a central corridor or hall. Provision is also made for connecting rooms or separating them. In the basement and the first story, stone tables, each supported by a pier which is separated by air spaces from the floors, furnish stable foundation for delicate instruments. Instruments, moreover, can be placed on the walls of a large rectangular tower standing on an independent foundation. This tower rises inside the building and is separated from the main walls of it by a large air space.

It does not extend to the roof, and is therefore free from disturbances produced by the movements inside the building and from possible vibrations resulting from gusts of wind.

This tower constitutes a pier of large section nearly 60 feet in height, and more or less stable positions for instruments can therefore be obtained on each story. It is designed for investigations which demand a great height, the different floors opening to each other by trap doors. Small openings have been left in the brick partitions which divide the length of the building; by means of these a long path is available for experiments in which this arrangement may be necessary. In the western wing, iron nails and pipes, which would disturb delicate experiments in magnetism, were excluded in the construction of the building. All steam pipes here are made of brass, and copper nails are used in the flooring. In the bottom of the tower is a small underground room which may be used for experiments requiring a constant temperature.

A room is devoted to apparatus designed for the more accurate standard measurements.

A comparator for the measurement and comparison of standards of length occupies a room in the basement of the building.

The photographic room is on the fourth floor; adjoining this is a large room especially arranged for spectrum analysis. There are four principal laboratories. One of these, 60 feet square, is devoted to elementary laboratory instruction. The laboratories for instruction in static and steady current electricity and in optics are on the second and third floors. The laboratory for work in magnetism and alternating currents is in the basement.



THE JEFFERSON PHYSICAL LABORATORY.



THE HEMENWAY GYMNASIUM.

A machine room is supplied with power from the city circuit. In this room are a milling machine, a large machine lathe, a smaller lathe, and other mechanical appliances for the construction of apparatus. The machine room is under the charge of a skilled mechanician. Power can also be obtained from a twenty-five-horse-power engine which is placed in a house outside of the Laboratory.

Much space is devoted to a physical cabinet. Here can be seen a frictional electric machine, ordered for the College by Benjamin Franklin, a large reflecting telescope, an astronomical quadrant and other apparatus used by John Winthrop, second Hollis Professor from 1738 to 1779. The cabinet contains also other pieces of apparatus which possess an historical interest.

The most prominent feature, however, of the Jefferson Physical Laboratory is not its collection of apparatus, but its arrangement of space for scientific investigation, and its plant for the construction of new apparatus to meet the demands of the future.

The Hemenway Gymnasium, built and equipped in 1878, was the gift of Augustus Hemenway, of Boston, of the Class of 1875. When, on account of the increased number of students in the University, the Gymnasium failed to meet completely the needs of the students, Mr. Hemenway, in 1895, made an extensive addition to the building, affording an increased floor area of 15,000 square feet. The main hall on the first floor is equipped with light and heavy gymnastic apparatus and modern developing appliances. A gallery surrounding the hall is fitted as a running track. On the second floor is the trophy room, containing souvenirs of athletic con-

tests, a rowing room, the Director's office, and rooms for measuring, photographing, etc. The staircase hall is hung with portraits of athletes. In the basement are bowling alleys, hand-ball courts, and rooms for fencing, sparring, wrestling, and other exercises. In the east end of the building are the locker, the bathing, and the dressing rooms, accommodating 2500 students. In the rear is an area covered with asphalt. This is enclosed by a high fence, and affords facilities for practising hand-ball, and other gymnastic games and exercises.

Conant Hall, the gift of Edwin Conant, of Worcester, of the Class of 1829, was built in 1893-95 at a cost of about \$109,000. It contains 45 suites of rooms, and three single rooms.

Mr. Conant was a benefactor of other departments of the University, giving \$5,000 to the Divinity School and \$27,500 to the College Library.

Perkins Hall, the gift of Mrs. Catharine P. Perkins, of Boston, was built in 1893-95 at a cost of about \$160,000. It contains 88 suites of rooms.

It was erected in memory of three members of her husband's family, the Reverend Daniel Perkins, Richard Perkins, and William Foster Perkins, all alumni of the University.

The University Museum.--Louis Agassiz, when he was first appointed to a professorship in the University, started a collection of zoölogical specimens, and made clear the need of a building for housing this collection. In 1858 Francis Calley Gray, of Boston, of the



CONANT HALL.



PERKINS HALL.

Class of 1809, left \$50,000 for a Museum of Zoölogy, giving his nephew, William Gray, the option of bestowing the fund upon Harvard University. He gave it to the University, and it was supplemented by \$100,000 voted by the Legislature, and by \$71,000 subscribed by private citizens of Boston. Mr. Henry Greenough, of Cambridge, and Mr. George Snell, of Boston, volunteered to make a plan for the museum building, and produced a design large enough to meet all demands for space for a long time. There was to be a main building with two wings. At first only about two-fifths of one of the wings was erected; this was completed in 1860. Professor Agassiz himself dug the first spadeful of earth. In 1868 the Legislature voted \$25,000 a year for three years, on condition that as much more should be raised from private sources. This was done, and in 1871-72 the capacity of the building was more than doubled. In 1877 the wing was completed; and in 1880-82 the northwest corner of the main building, which now contains the library and the laboratories, was erected by Alexander Agassiz, of the Class of 1855, in memory of his father. A slate tablet in the hall bears this inscription:—

· LVDOVICI ·
 AGASSIZ ·
 PATRI · FILIUS ·
 ALEXANDER ·
 MD · CCC · LXXX ·

In 1888-89 the middle portion of the main building, devoted to the Departments of Botany and Mineralogy, was added, so that now only the southwestern corner and the western portion of the wing of which the Peabody

Museum is a part are needed to complete the structure originally planned by Messrs. Greenough and Snell.

The Museum is largely dependent for support on the Memorial Fund, part of which was raised by school children throughout the country, whose interest in natural history had been awakened by the labors of Agassiz.

The University Museum comprehends the Museum of Comparative Zoölogy, the Botanical Museum, the Mineralogical Museum, the Natural History Laboratories, and the Peabody Museum of American Archaeology and Ethnology. The Semitic Museum is for the present placed in the building of the Peabody Museum.

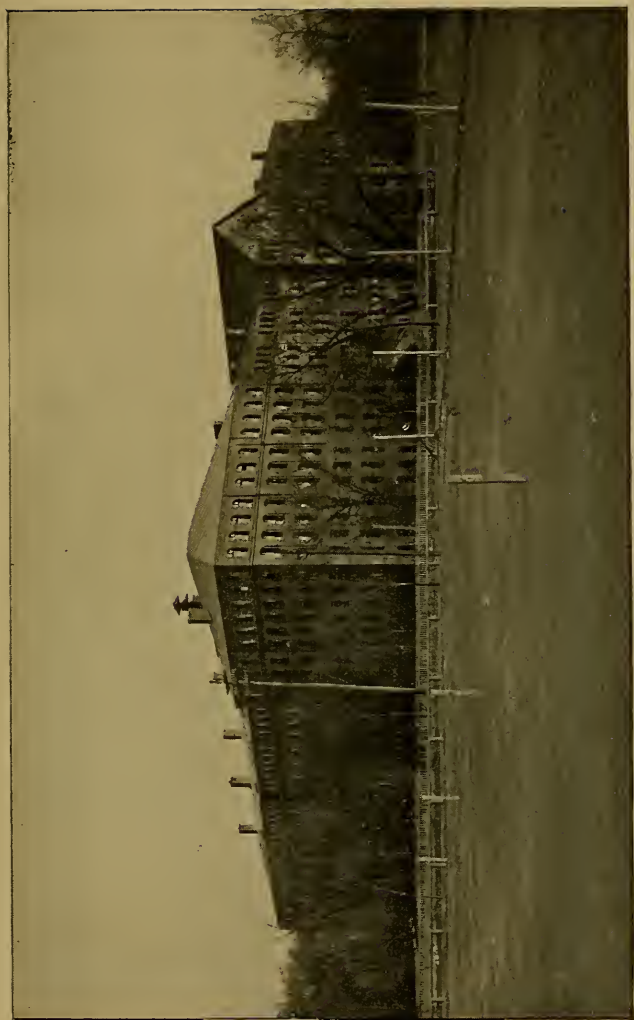
The entrance to the Museum of Comparative Zoölogy and the Peabody Museum is from Divinity Avenue. The Natural History Laboratories and the Botanical and Mineralogical Museums are entered from Oxford Street.

The Museum of Comparative Zoölogy consists of the north wing of the University quadrangle (60 x 200 feet). The Natural History Laboratories are in the northwest corner piece of the same quadrangle (95 x 75), and in the adjoining sections of the central part of the Oxford Street side of the University Museum.

The Botanical Museum occupies the central section of the University Museum, together with one-third of the southern sections.

The Mineralogical Museum occupies a part of the southern section of the Oxford Street side of the building.

The library of the Museum, which contains more than 32,000 volumes, is on the second floor. It is intended for the use of instructors and students in the Department of Natural History. The reading room is open from 9 A.M. till 1 P.M. and from 2 P.M. till 5 P.M.



THE UNIVERSITY MUSEUM.

The southwest corner piece will contain large lecture rooms and laboratories for the Department of Natural History, and its exhibition rooms will connect the Oxford Street side of the Museum with the Peabody Museum, which, when completed, will form the south wing of the University Museum building.

The location of the various collections of the Museum, of the laboratories, a brief description of which is appended, and of the rooms of officers and instructors is indicated on the diagrams of the various floors which will be found in the succeeding pages. Heavy-faced type indicates that the room or the collection is open to the inspection of the public. The numbers on the diagrams are arbitrary and do not correspond with the numbers on the various rooms. Reference to the diagrams will, however, show the relative positions of the rooms.

In general the Museums are open as follows :—

The Museum of Comparative Zoölogy and the Botanical Museum are open every week-day from 9 A.M. until 5 P.M., and on Sunday from 1 P.M. till 5 P.M.

The exhibition room of the Mineralogical Museum is open Wednesday and Sunday from 1 P.M. till 5 P.M., and Saturday from 9 A.M. until 5 P.M.

The Peabody Museum is open from 9 A.M. till 5 P.M. throughout the year, Sundays and holidays excepted.

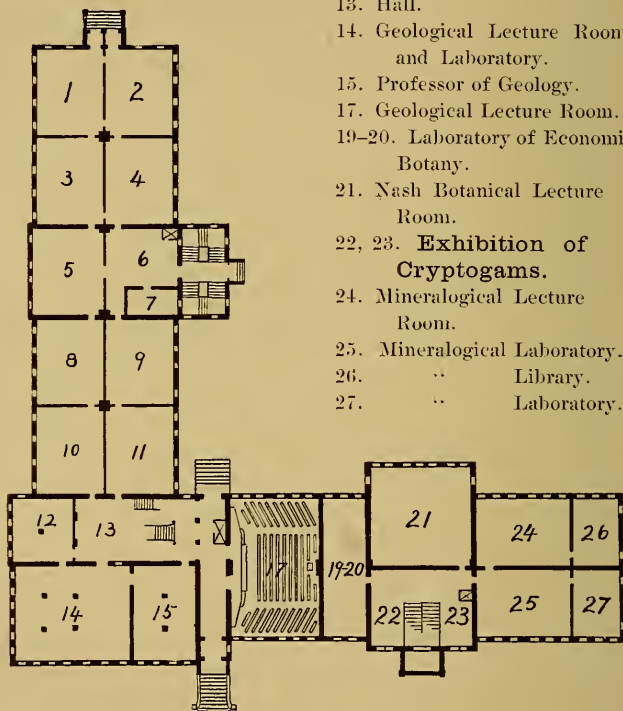
1. Alcoholic Mammals, Birds, and Mollusca. — Storage.
2. Alcoholic Crustacea. — Storage.
3. Alcoholic Fishes. — Storage.
4. Alcoholic Radiates. — Storage.
- 4a-4c. Alcoholic Worms. — Storage.
5. Alcoholic Fishes. — Storage.
6. Alcohol room.
7. Storage.
- 7a. Glassware. — Storage.
8. Alcoholic Fishes. — Storage.
9. Alcoholic Reptiles and Amphibia. — Storage.
10. Storage.
11. Fishes, Reptiles, Amphibia. Assistants
12. Workshop. — Janitor.
13. Boilers.
14. Aquarium.
15. Vivarium.
16. Coal.
17. Geology. — Workshop.
- 17a. Geology. — Models.
- 17b. Photography.
- 18-18a. Geology. — Workshops.
- 19-20. Botanical storerooms.
21. Nash Botanical Lecture Room.
- 21a. Botanical Photographic Room.
22. Botanical Diagram Room.
23. Janitor's Room.
24. Collection of Fossil Plants.
- 25, 25a. Rooms for Mineral Analysis.
26. Alcohol Room.
27. Assay Laboratory.



BASEMENT.

- 1 and 3. Tertiary Collections.
 2. Cretaceous and Jurassic Collections.
 4. Paleozoic Collections.
 5. Synoptic Collections.

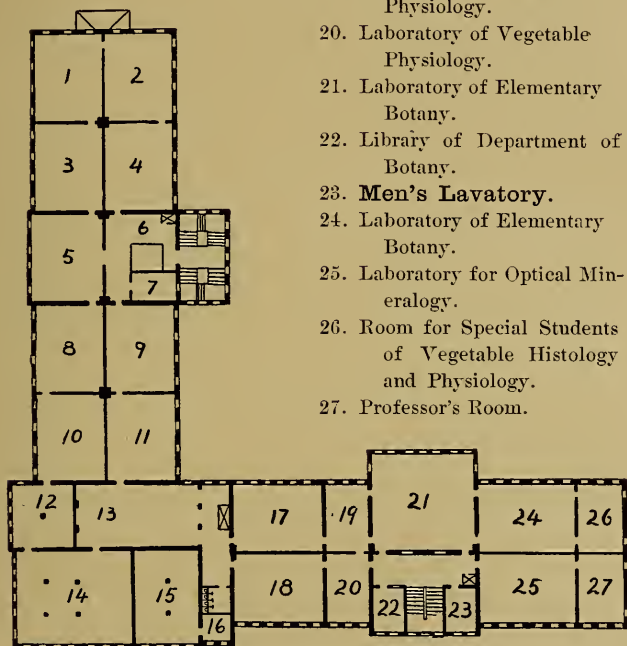
6. Hall.
 7. Office.
 8-11. Fossil Invertebrates. — Storage. Assistant.
 12. Geological Lecture Room.
 13. Hall.
 14. Geological Lecture Room and Laboratory.
 15. Professor of Geology.
 17. Geological Lecture Room.
 19-20. Laboratory of Economic Botany.
 21. Nash Botanical Lecture Room.
 22, 23. Exhibition of Cryptogams.
 24. Mineralogical Lecture Room.
 25. Mineralogical Laboratory.
 26. " Library.
 27. " Laboratory.



FIRST FLOOR.

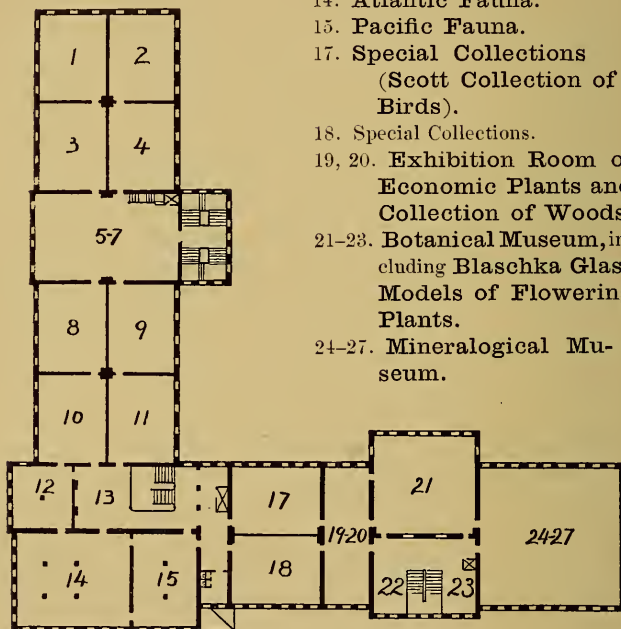
- 1-4. Entomology. Assistant.
 5. **Special Collections.**
 6. Hall.
 7. Office.
 8-12. Library.
 13. Hall.

14. Library.
 15. Curator.
 16. Curator.
 17. Zoölogical Laboratory.
 18. Assistants in Department of Zoölogy.
 19. Laboratory of Vegetable Physiology.
 20. Laboratory of Vegetable Physiology.
 21. Laboratory of Elementary Botany.
 22. Library of Department of Botany.
 23. **Men's Lavatory.**
 24. Laboratory of Elementary Botany.
 25. Laboratory for Optical Mineralogy.
 26. Room for Special Students of Vegetable Histology and Physiology.
 27. Professor's Room.



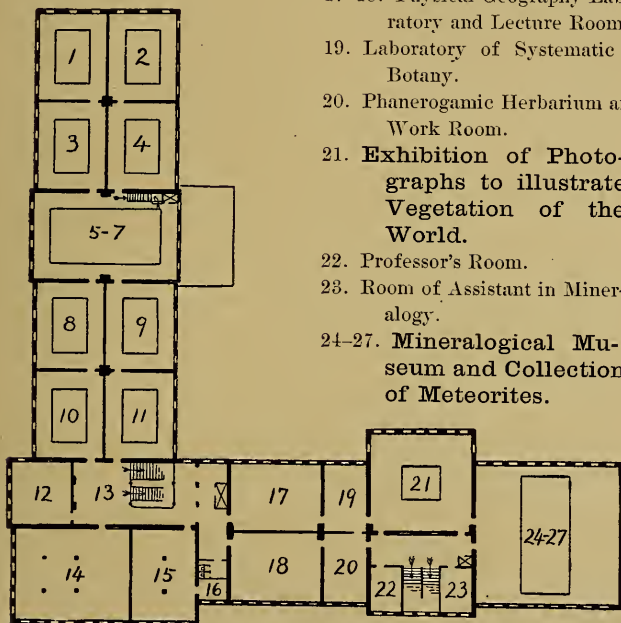
SECOND FLOOR.

1. **Fishes.**—Systematic Collection.
2. **Mollusca.**—Systematic Collection.
3. **Birds.**—Systematic Collection.
4. **Radiates.**—Systematic Collection.
- 5-7. **Mammalia.**—Systematic Collection.
8. **South American Fauna.**
9. **North American Fauna.**
10. **Indo-Asiatic Fauna.**
11. **African Fauna.**
12. **Europo-Siberian Fauna.**
13. Hall.
14. **Atlantic Fauna.**
15. **Pacific Fauna.**
17. **Special Collections**
(Scott Collection of Birds).
18. Special Collections.
- 19, 20. **Exhibition Room of Economic Plants and Collection of Woods.**
- 21-23. **Botanical Museum,** including Blaschka Glass Models of Flowering Plants.
- 24-27. **Mineralogical Museum.**



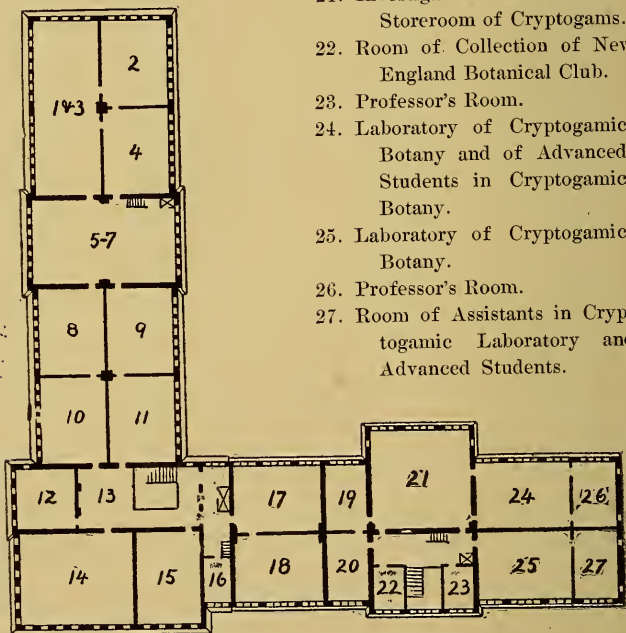
THIRD FLOOR.

1. Crustacea, Insects and Worms. — Systematic Collections.
2. Mollusca. — Systematic Collections.
3. Reptiles and Amphibia. — Systematic Collections.
4. Echinoderms and Coelenterates. — Systematic Collections.
- 5-7. Reptiles. — Systematic Collections.
8. Australian, New Guinea and New Zealand Fauna.
9. North American Fauna.
10. Indo-Asiatic Fauna.
11. African and Madagascan Fauna.
12. Zoölogical Laboratory.
13. Hall.
14. Zoölogical Laboratory and Lecture Room.
15. Zoölogical Laboratory.
16. Professor's Room.
- 17-18. Physical Geography Laboratory and Lecture Room.
19. Laboratory of Systematic Botany.
20. Phanerogamic Herbarium and Work Room.
21. Exhibition of Photographs to illustrate Vegetation of the World.
22. Professor's Room.
23. Room of Assistant in Mineralogy.
- 24-27. Mineralogical Museum and Collection of Meteorites.



FOURTH FLOOR.

- 1 and 3. Fossil Vertebrates. — Mammals, Birds, Reptiles and Amphibia.
 2. Fossil Vertebrates.—Assistant in Vertebrate Paleontology.
 4. Fossil Vertebrates. — Fishes.
 5-7. Mammals and Birds.—Storage.
 8-10. Mammal Skeletons. — Storage.
 9-11. Mammal and Bird Skins. — Storage.
 12. Reptiles, Amphibia and Fishes. — Storage.
 13. Hall.
 14. Zoölogical Lecture Room and Laboratory.
 15. Radiates.—Storage. Assistant.
 16. Zoölogical Laboratory.
 17-18. Mollusca and Crustacea. — Storage. Assistant.
 19. Work Room of Assistant in Cryptogamic Herbarium.
 20. Cryptogamic Herbarium.
 21. Investigators' Rooms and Storeroom of Cryptogams.
 22. Room of Collection of New England Botanical Club.
 23. Professor's Room.
 24. Laboratory of Cryptogamic Botany and of Advanced Students in Cryptogamic Botany.
 25. Laboratory of Cryptogamic Botany.
 26. Professor's Room.
 27. Room of Assistants in Cryptogamic Laboratory and Advanced Students.



FIFTH FLOOR.

The Laboratory of Geology is on the first floor of the Museum. The larger part of this room is devoted to instruction in elementary general geology. Here are collections of rocks and specimens illustrating dynamic geology, and additional materials for teaching in the form of maps and models. The objects worthy of special note by the visitor are the model of Etna by Deckert, after Baron von Waltershausen's map of that volcano, a model of the Dents du Midi, Tour Sallières and Mont Ruan, Canton Valais, Switzerland, geologically colored after directions by Hein and Früh, and a case of the type specimens described in the writings of officers and students of the Department of Geology.

On this floor are the private office of the Professor of Geology, the lecture room of the Sturgis Hooper Professor of Geology, and the geological lecture room, which has a seating capacity of 298.

Laboratory of Experimental Geology. — Two rooms in the basement of the Museum are equipped as a laboratory of experimental geology. Most of the apparatus now in stock is the product of experimental research by advanced students. The object of such research is in some cases the precise interpretation of dynamic processes and the structures resulting therefrom; in other cases only the suggestive illustration, in miniature, of the unseen processes of geology. Apparatus is provided to imitate the deformation of the stratified rocks, the action of springs and geysers, the deposition of deltas, the formation of ripplemark, the crystallization of volcanic rocks, the motion of ice, and the formation of joints. The large compression chest of oak, with opposed thrust pistons, indices, and a movable bottom, is used

for deforming under pressure wax models cast to imitate various possible conditions of stratification. The gas blast furnace is used for synthetic experiments, and is provided with an automatic self-extinguishing appliance for safety against accidents by fire. The electric furnace is designed for the reproduction of Moissan's experiments. Projection lanterns, with devices for vertical as well as horizontal projection, are used in combination with glass tanks of different shapes, to show the action of currents in transporting and depositing sediment.

Laboratories of Mineralogy and Petrography. — The basement of the Museum contains a chemical laboratory, completely equipped for mineral and rock analysis, for the use of instructors and advanced students engaged in research. The workshop for slicing, grinding, and polishing rocks and minerals is at present in the basement of the next section of the Museum, and is equipped with a number of the necessary machines, run by electric power.

Of the four rooms on the first floor, one is the mineralogical lecture room and laboratory for elementary crystallography and for petrography. It is equipped with microscopes and other apparatus, including the electric light for illustrating lectures by the stereopticon and projecting microscope. Large collections of rocks and the corresponding thin sections are kept here for students' use and investigation, and also the material for the elementary study of crystallography, comprising glass and wooden models and over 1000 natural crystals.

The second room of equal size is the laboratory for determinative mineralogy, fitted with tiled tables and cement floor, containing 100 blow-pipe sets, the students'

reference collection of minerals, comprising about 2000 specimens fully labelled, the review sets of about 2000 specimens unlabelled, the study collection of about 3600 specimens, and a large stock of material for replenishing the study drawers.

Of the two smaller rooms, one is the library, containing the principal periodicals and independent works (about 700 books), and the other a smaller laboratory, used for Radcliffe students in mineralogy and for advanced work; it contains large collections of rocks.

The laboratory for advanced work, on the second floor, contains the goniometers and other apparatus for crystallography and optical mineralogy and the "Scientific" collection of minerals for use in investigation (about 4000 specimens), and rock collections.

The rock collections contained in the various rooms of the Museum are extensive, comprising the Whitney and the Brooks collections, various European and local collections, and material collected by individuals or expeditions in various parts of the world. The thin sections run high into the thousands, including 100 from meteorites.

The total number of mineral specimens in the exhibition rooms is about 10,000, exclusive of the meteorites; the minerals worth enumerating in the other collections bring the total up to about 23,000.

The more important part of the mineralogical collections of the University is exhibited on the third and the fourth floors, although a large amount of duplicate material and of specimens less suitable for exhibition is contained in the collection on the second floor and in the collections used for teaching on the first floor.

Laboratory of Palaeontology.—Instruction in palaeontology is given in Room 2 of the University Museum. Here are kept the collections, the diagrams, and a few of the more important reference books required by students. The collection used in teaching general palaeontology is arranged systematically, and is contained in trays in twelve wall cases on the east side of the room. The collection used in teaching historical geology is arranged stratigraphically, and is contained in trays in table or desk cases in the north end of the room. These collections are freely accessible to students. Besides collections in the laboratory, students can consult the fossils on exhibition in the Museum, where they are arranged either in the systematic series or in rooms especially devoted to palaeontology.

The Laboratories of Geography are on the fourth floor of the University Museum. They are devoted to the needs of the various classes in physical geography and meteorology, with special reference to laboratory exercises. The lecture room on the first floor is used for general meetings with larger classes. The equipment of the laboratories, chiefly within the last ten years, has been planned with a view to furnishing material for individual study in geography, comparable to that afforded in zoölogy and botany in the other laboratories of the Museum. It includes a variety of maps, charts, models, diagrams, photographs, and lantern slides. Special mention may be made of the collection of large-scale grouped map-sheets, illustrating districts of peculiar interest in this country and abroad. These are supplemented by a collection of the topographical maps of the United States governmental surveys and of nearly all the European

surveys, in the College Library. The collection of models includes four of type forms by Heim, Pomba's Italy on a true curved surface, the Upper Moselle by the Geographical Service of the French Army, Southern New England by Howell, the Gulf of Mexico by the United States Hydrographic Office, as well as the first three numbers of a series to be known as the "Harvard Geographical Models," designed with special reference to systematic instruction in secondary schools.

Materials for instruction in meteorology and climatology include a full set of weather maps from the United States Signal Service and Weather Bureau, pilot charts of the North Atlantic and North Pacific from the United States Hydrographic Office, as well as a large number of meteorological charts and diagrams from different sources, and a number of official British, German, and French publications. These are supplemented by an extensive collection of climatological reports from all parts of the world in the library of the Astronomical Observatory.

Laboratories of Zoölogy.—The laboratories and lecture rooms of the Department of Zoölogy are in the northwest corner of the Museum of Comparative Zoölogy, and may be reached from the steps in the northwest corner of the Museum quadrangle, off Divinity Avenue, or from the north entrance to the Museum on Oxford Street. The present quarters were first occupied in 1885. On the fifth floor is a lecture room seating about 200 persons; it is used for elementary laboratory exercises as well as for lectures. The walls are decorated with busts and portraits of distinguished zoölogists. On this floor there is also a small laboratory, furnished

with modern apparatus and a reference library, for the use of students in Radcliffe College. On the fourth floor are three laboratories and the private room of the Hersey Professor of Anatomy. Cases in the hall are occupied by material used in lectures and demonstrations on invertebrates. The corner room (3) is used as a laboratory, and as a lecture room for classes not exceeding 50 in number. Courses on the morphology of invertebrates and on the comparative anatomy of vertebrates are given in this room. Here are lodged the osteological and other anatomical preparations for use in lectures and demonstrations on vertebrates, a large proportion of the 1700 diagrams, and a portion of the microscopes and the reference books belonging to the department. The room is furnished with an injecting table and the necessary apparatus for the injection and preparation of material, in addition to the students' work tables. The Zoölogical Club usually meets in this room. The adjacent room (2) is used by students in courses on microscopical anatomy and technique and on embryology. In cases in this room is stored much of the apparatus, such as microscopes, microtomes, incubators, wax plate and modelling apparatus, wax models (the work of students), projection apparatus, cameras, etc. This room, as well as most of the other laboratories, is provided with a water bath for imbedding in paraffin, with automatic regulator and the Koch safety gas burners.

Room 4 on this floor accommodates a portion of the students engaged in research. Most of the chemicals are stored in this room, and to save the time of workers there is an alphabetic index indicating the place of all

the articles (except diagrams and preparations) in the department. A map of the vicinity of Cambridge, minutely ruled, together with a card catalogue of New England localities in which particular animals are to be found, aids the student in familiarizing himself with the surrounding fauna, both land and marine, and in securing the material necessary for his investigations. Room 6 is used by the instructors in the department as a private work room.

In addition to the library of the Museum there is a departmental library of about 300 volumes of works much consulted, such as Brown's "Thierreich" and the more expensive Manuals; these are distributed through the zoölogical laboratories where most needed.

The instruction in palaeozoölogy is given in the laboratory of the Department of Geology on the first floor, room 2, which is supplied with material for class work and with numerous charts, diagrams, and models.

The zoölogical collections of the Museum are close at hand and readily consulted in the exhibition rooms.

In the basement are two large rooms, one of which is partially fitted as an aquarium. In it experimental work has been done. The other is to be equipped as a vivarium.

All the floors having zoölogical laboratories are connected with each other by telephone.

Laboratories of Cryptogamic, Phanerogamic, and Economic Botany. — The Department of Botany of the University occupies the rooms in the basement, the central part, and the adjoining southwest wing of the Museum, except the rooms devoted to mineralogy and petrography. In the basement are storerooms and rooms for photography.

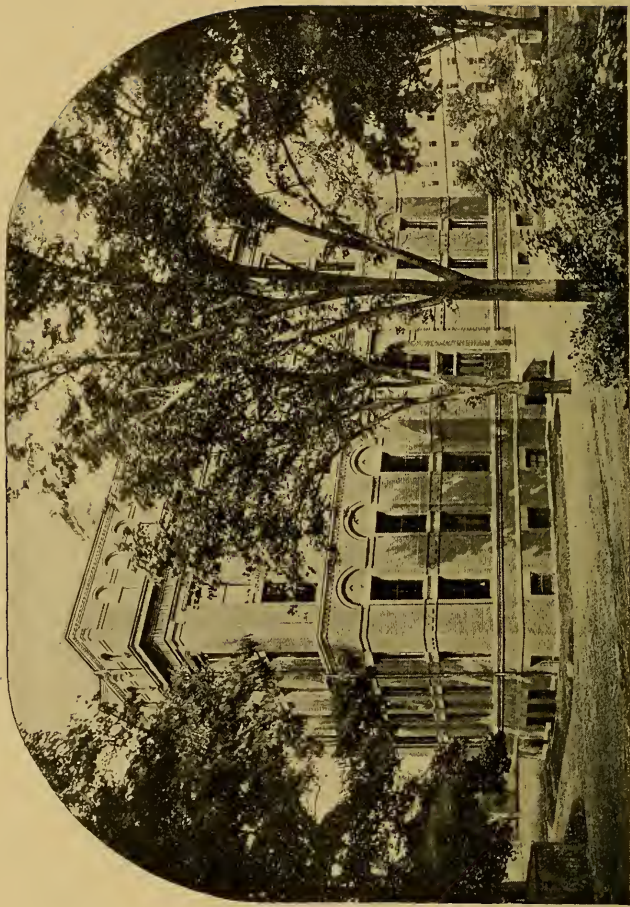
On the first floor are the Nash Botanical Lecture Room, built with the gift of Nathaniel Cushing Nash, of the Class of 1884, in memory of his father; the laboratory of economic botany; and the exhibition cases of cryptogams. On the second floor, room 10 contains the departmental library; rooms 11 and 11A are the laboratories of vegetable physiology and histology; rooms 12 and 13 are laboratories for elementary work; in addition to these is a special room assigned to advanced students of physiological botany. On the third floor and the gallery connected with it, are the halls devoted to the botanical museum. Here are the Blaschka glass models of flowers, the gift of Mrs. Charles Eliot Ware and her daughter, Miss Mary Ware, in memory of Charles Eliot Ware, of the Class of 1834. On the fourth floor, room 19 is the private room of the Fisher Professor of Natural History; in room 20 is a working collection of native and exotic phanerogams; rooms 20A and 21A are used by students of systematic and economic botany. The rooms on the fifth floor are devoted to cryptogamic botany: room 25 is used temporarily for the collection of the New England Botanical Club; rooms 26 and 26A contain the Cryptogamic Herbarium of the University, which includes collections of algae, fungi, and lichens; room 27, is devoted to the use of special workers; rooms 29 and 29A are laboratories for students of cryptogamic botany, the latter for advanced students; room 29B is the laboratory of the assistants in cryptogamic botany; room 29C is the private laboratory of the Assistant Professor of Cryptogamic Botany; room 30 is the private laboratory of the Professor of Cryptogamic Botany.

The Peabody Museum.— This museum was founded by George Peabody, a native of Massachusetts, who, in 1866, gave \$150,000 for the foundation of a museum and a professorship of American archaeology and ethnology in connection with Harvard University. Mr. Peabody placed the fund in the charge of a board of trustees of which Robert Charles Winthrop, of the Class of 1828, was chairman until his death, in 1894. The first curator of the Museum was Jeffries Wyman, of the Class of 1833. At his death, in 1874, Frederic Ward Putnam was appointed his successor. On January 1, 1897, the Trustees of the Museum transferred the property to the President and Fellows of Harvard College.

Mr. Peabody, by this gift, made the first foundation in this country for special research relating to the early or pre-Columbian history of America. Since then, however, the Museum has, from time to time, been enriched by contributions of money and of specimens, and four permanent endowments have been made.

The arrangements of the collections is intended to facilitate research in general anthropology, with special reference to American and comparative archaeology and ethnology. Here are kept material secured by explorations carried on by the curators, or under their direction, in various parts of America, and collections from Europe, secured by purchase in the early years of the Museum. These collections are used in the comparative study of the early works of man in different parts of the world.

The building, 100 feet long and 5 stories high, is one half of the contemplated structure, which will form the south wing of the University Museum. The entrance is on Divinity Avenue.



THE PEABODY MUSEUM.

In the room on the left of the entrance hall is the general office and Anthropological Library. The library contains about 1900 volumes and 2500 pamphlets on all branches of anthropology. The publications of the Museum are annual reports, special papers, and memoirs. At the end of the entrance hall is the lecture-room, with a seating capacity of about 200. In cases around this hall are arranged the collections illustrating the life and customs of several tribes of North American Indians. The gallery above this hall is temporarily given to the Semitic Museum of the University. On the fifth floor is the students' laboratory and lecture room. On this floor, in the central hall and south room, is the osteological collection, used in the comparative study of human crania and skeletons. The other exhibition rooms are devoted to archaeological and ethnological material from America and other parts of the world arranged geographically.

The Museum is in charge of the Curator and is open to the public, under proper restrictions, from 9 A.M. to 5 P.M., throughout the year, Sundays and holidays excepted.

A special guide to the museum may be obtained at the office.

The Semitic Museum.—The collections of the Museum occupy a gallery on the second floor of the Peabody Museum. They have been purchased by gifts of many friends, but chiefly by a gift of \$10,000 made by Jacob H. Schiff, in 1889. Other friends have given individual objects or small collections of objects. The Harvard Divinity School has placed on deposit here a collection of Babylonian clay tablets, the gift of the

Honorable Stephen Salisbury. The Divinity School will also place on deposit here a collection of Palestinian objects, gathered by Doctor Selah Merrill while consul at Jerusalem, and purchased for the School by the contributions of many friends. The Museum was formally opened on May 13, 1891. The total cost of the collections has been about \$14,000.

The objects already acquired are originals and reproductions. Of the former may be mentioned, from Babylon and Assyria, stone seal cylinders, and inscriptions on stone and on clay; from Phoenicia, glass vases, dishes, and bowls found in the tombs; from Palestine, the Merrill collection of birds, animals, plants, seeds, glass, coins, geological specimens, and numerous articles illustrating modern peasant and Bedouin life; from Egypt, a collection of mortuary Moslem inscriptions in the Cufic character, some of them about 1000 years old; from various Semitic lands, many manuscripts, Arabic, Hebrew, and Aramaic.

The reproductions are largely plaster casts of important Assyrian and Babylonian monuments in the museums of London, Paris, and Berlin. These casts are from bas-reliefs, statues, obelisks, winged lions, clay tablets, seals, building bricks, commercial weights in the shape of lions and ducks, and numerous other small objects. There are also casts of Hebrew and Phoenician inscriptions, of a Phoenician sarcophagus, of Persian archers and inscriptions, of Hittite hunting scenes and inscriptions, and of the Moabite stone recording the revolt of Mesha from the Hebrews. There are likewise many photographs of Semitic buildings and natural scenery, especially from Damascus, Palestine, and Spain.

THE BOTANIC GARDEN.

This garden, situated at the corner of Garden and Linnaean Streets, Cambridge, was established, at the beginning of the century, by a few gentlemen who endowed a professorship of Natural History. The committee in charge of the enterprise selected as the first incumbent of the chair, William Dandridge Peck, of the Class of 1782, and, distinctly understanding that special prominence should be given to Botany, despatched him to Europe to examine botanic gardens in England and on the continent, while they secured a lot of land for the purpose of a garden here. In 1807 Professor Peck laid out a portion of the seven acres at the corner of what are now known as Garden and Linnaean Streets, following as a model the formal lines of the smaller establishments in England. This arrangement has not since been essentially changed in any manner. After Professor Peck's death the garden passed under the charge of Thomas Nuttall, and later of Thaddeus Harris, as curators, the funds having dwindled so much that it was no longer possible to assign the income to a full professorship. About 1842 the income of a newly established professorship, endowed by Joshua Fisher, of the Class of 1766, became available, and to this new chair Dr. Asa Gray was invited. The amount at Dr. Gray's disposal for the maintenance of the garden was inadequate, but it was supplemented by the expenditure of untiring energy. The garden was soon enriched by large numbers of native and foreign plants, and shortly became the recipient of the newer treasures coming from the West and the Southwest.

Dr. Gray was wont to place in nooks not easily accessible to the public the rarer plants which have since become the common property of horticulture, and in this way he introduced some of the choicest novelties.

In 1872, the garden was placed under the charge of the Director of the Arnold Arboretum, Professor Charles Sprague Sargent, of the Class of 1862. The distribution of species was changed, and many improvements which the poverty of the garden had hitherto forbidden were successfully introduced. The garden has been under the charge of the present director, Professor George Lincoln Goodale, of the Class of 1863, Medical School, since 1886.

For inspection the garden may be conveniently divided into the area below the terrace and that on the upper level. Below the terrace the natural orders of flowering plants and the *genera* of ferns and their allies are arranged in formal beds, which are so disposed as to exhibit many of the affinities of the families.

In various places below the terrace are special beds devoted to groups of plants of particular interest. Among these are plants mentioned to by Shakspeare and by Vergil. One long bed contains a large number of the species described by Parkinson as cultivated for decorative purposes at the beginning of the seventeenth century; these may fairly be said to represent the old-fashioned plants grown in "pleasure gardens" at the time the University was founded. Two groups which possess more than ordinary attractions to the casual visitor, the Australasian species and the desert plants, are near the Linnaean Street border.

On the upper level are the large plots assigned to select North American species. Near these are the cultivated

forms of the rarer vegetables grown for the study of variation.

The greenhouses are of the common composite type. Beginning on the left and passing towards the east are successively the succulents, the Australian, the Mexican and fern houses, the palm house and its attached hot house, filled with exotics demanding great heat. Behind this range, a long range is to be built, which will be largely devoted to economic plants and to plants under the hands of experimenters. This range will have a laboratory at its extreme western end.

The Botanical Laboratories of the University are distributed as follows:—At the Botanic Garden are the Gray Herbarium and the Botanical Library, and the Laboratory of Vegetable Physiology. In the University Museum are the Laboratories of Cryptogamic, Phanerogamic, and Economic Botany.

The Gray Herbarium.—The Gray Herbarium of Harvard University is situated in the Botanic Garden at the corner of Linnæan and Garden Streets, Cambridge. The collection, founded and largely developed by the late Professor Asa Gray, was given by him to the University in 1864. At that time the fire-proof brick building which it now occupies was built for the Herbarium through the liberality of Nathaniel Thayer. The collection, being the result of more than sixty years of continuous and carefully directed growth, contains over 250,000 sheets of mounted specimens, representing all groups of flowering plants, ferns, fern-allies, mosses, and hepatics. The fungi, algae, and lichens have now been wholly transferred to the Cryptogamic Herbarium in the Botanical

Division of the University Museum. Among the many additions which have been made to the original collection of Professor Gray since its receipt by the University, the following have been the most important: the herbaria of Jacques Gay, G. Curling Joad, and John Ball, all rich in Old World types; the herbarium of Dr. George Thurber, especially rich in critically identified grasses; the moss collections of W. S. Sullivant and of Thomas P. James; the hepatics from the herbarium of Thomas Taylor; the general herbarium of William Boott, notable for its excellent representation of the difficult genus *Carex*; the *Compositae* from the herbarium of Dr. F. W. Klatt, specialist in that order. The Gray Herbarium, with which the above collections have been incorporated, is also rich in standard and rare phanerogamic *exsiccati*, in type specimens of new species and varieties, and in the possession of the greater part of the plants which have been critically examined in the preparation of the "Synoptical Flora of North America." In the arrangement of the Herbarium the sequence of Engler & Prantl's "Natürliche Pflanzenfamilien" is now followed.

The Library of the Herbarium.—Together with his herbarium, Professor Gray gave to Harvard University, in 1864, his extensive botanical library. This nucleus of the *Library of the Gray Herbarium* was soon increased by a valuable collection of floras, contributed by John A. Lowell. Augmented also by lesser gifts and by purchases, the library now contains more than 12,000 carefully selected volumes and pamphlets.

Laboratory of a Vegetable Physiology.—This laboratory occupies the brick building extending eastward from the Herbarium. The building also contains a lecture

room, having a seating capacity of 100. The present laboratory will be soon supplemented by a larger laboratory in process of erection on the plateau in the rear.

THE ASTRONOMICAL OBSERVATORY.

The Astronomical Observatory, situated between Concord Avenue and Garden Street, Bond Street and Madison Street, Cambridge, opposite the Botanic Garden, was established in 1843. The annual income, used exclusively for research, is about \$50,000, and is mainly derived from a permanent endowment of \$780,000. Twenty-one men and nineteen women are employed. The investigations so far completed fill nearly 40 quarto volumes of annals. Discoveries made here are promptly announced by means of circulars which are issued, on an average, once a month. This Observatory, and that at Kiel, Germany, have been selected by international agreement as centres for the prompt distribution of astronomical discoveries. Discoveries are telegraphed to one of these centres, cabled from there to the other centre, and at once transmitted to the principal observatories and newspapers of Europe and America. The Library of the Observatory contains about 9000 astronomical and meteorological volumes, and 13,000 pamphlets.

The principal objects of interest in the main building of the Observatory are the 15-inch equatorial telescope and attached photometers, the 8-inch meridian circle, the meridian photometer, the astronomical and meteorological libraries, and the clock vaults. On the grounds are the domes containing the 11-inch Draper telescope, with apparatus for removing and replacing the large objective

prisms, the apparatus for photographing variable stars and eclipses of Jupiter's satellites, and the pole star recorder for measuring the cloudiness at night; the 15-inch Draper reflector for determining the exact position of the pole, and constants of precession, aberration, and mutation; the 8-inch Draper doublet; the 6-inch doublet for photographing large portions of the sky; the 12-inch horizontal telescope with photometer for measuring stars as faint as the thirteenth magnitude; the transit photometer for photographing, every clear night, all stars brighter than the sixth magnitude between the north pole and declination — 30° , crossing the meridian after dark. The laboratory contains various electrical and mechanical devices, a commutator for controlling various telescopes, time signals for occultations, apparatus for enlargements, for standard lights, and for converting prismatic into normal spectra. The brick building contains nearly 100,000 photographs taken partly in Cambridge, and partly at the southern station of the Observatory in Peru. Charts and spectra of all the stars from the north to the south pole are represented on these photographs on many different nights, thus furnishing a complete history of the sky during the last ten years.

Besides the station at Cambridge, the Observatory maintains an important station near Arequipa, Peru, where the southern stars are studied in the same way that the northern stars are studied in Cambridge. Every important investigation is thus rendered complete from pole to pole. The elevation of the Arequipa Station is 8060 feet, and it was selected on account of its exceptionally favorable atmospheric conditions. The principal instruments at this station are the Bruce photographic



THE ASTRONOMICAL OBSERVATORY.

telescope, a doublet of 24 inches aperture, with two objective prisms having the same apertures; the Boyden telescope having an objective of 13 inches aperture, which can be used for either photographic or visual work by reversing the front lens (two objective prisms also accompany this instrument); the Bruce 11-inch telescope having a similar lens; the Bache telescope having an 8-inch photographic doublet with two objective prisms; numerous smaller instruments including a transit instrument, and a transit photometer, like that at Cambridge, which photographs similarly, as they cross the meridian, all bright stars between declination $+50^{\circ}$ and the south pole. A series of meteorological stations, crossing the Andes, is also maintained, the most important being that on El Misti at an elevation of 19,200 feet. The other stations are Mejia (elevation 100), La Joya (4150), Arequipa (8060), Alto de la Huesos (13,300), Mt. Blanc Station on El Misti (15,600), Cuzco (11,000), and Echarati (3000). Continuous observations are maintained at these stations by self-recording meteorological instruments, and are checked at the five lower stations by direct readings made three times a day.

In 1885 a meteorological observatory was established on Blue Hill, 12 miles south of Cambridge, by Abbott Lawrence Rotch, and is maintained there at his expense. To avoid duplication of work a plan of coöperation provides for the ultimate union of the two institutions, and the observations made on Blue Hill are published in the *Annals of the Harvard Observatory*. They will be found in Volumes XX, XXX, XL, and XLII. Later Blue Hill was taken by the Metropolitan Park Commissioners for a public park, but the land on which the Observatory is

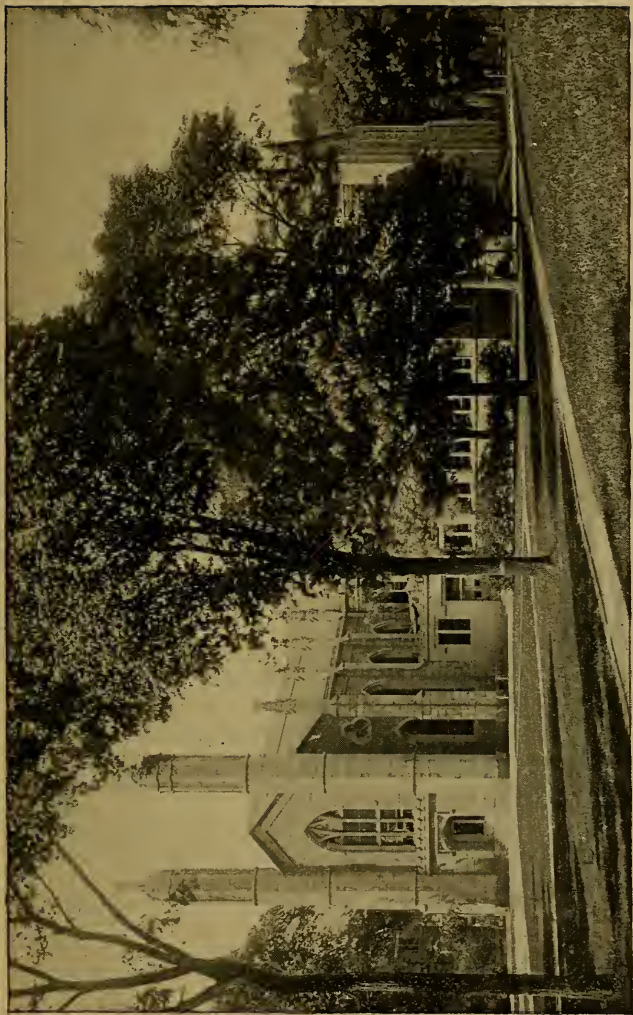
built has been leased for 99 years to the President and Fellows of Harvard College. This will enable the work of the Observatory to continue under invariable conditions of exposure. Observations of the principal meteorological elements are made at the summit and the base of Blue Hill three times a day, and self-recording instruments also furnish a continuous record. Numerous meteorological investigations have been undertaken. The first detailed measures of cloud heights and velocities made in this country were obtained at Blue Hill in 1890. For the exploration of the upper air, kites of various designs have been employed since 1894 by means of which self-recording instruments were carried to heights exceeding two miles.

THE UNIVERSITY LIBRARY.

History.—The nucleus of the College Library was the little collection of 360 volumes, bequeathed by John Harvard in 1638. The Puritan scholar's library was naturally strongest in the theological and polemical works of the day, but it had a good number of classics, Aesop, Cicero, Epictetus, Juvenal, Horace, Isocrates, Lucan, Pliny, Plutarch, Plautus, Terence, and others, and some modern works of literature and history, such as Bacon's Advancement Essays, Chapman's Homer, Quarles's Poems, Camden's Remains. Of all these, however, there now remains but one volume, Downname's Christian Warfare; the rest were destroyed in the fire of 1764.

The history of the library from that day to this is a record of generous gifts, great and small, from lovers of learning in this country and in England. Harvard's

bequest stirred the magistrates of the Colony to contribute books to the value of £200. Peter Bulkley, the minister settled in Concord, early gave 37 volumes; Governor Winthrop gave 40 volumes; Sir Kenelen Digby, in 1658, Catholic and Royalist though he was, sent over 29 volumes, probably out of friendship for Winthrop. During the first eighteen years of the College £150 was received from "divers gentlemen and merchants in England." The Reverend Ezekiel Rogers of Rowley, dying in 1661, left all his Latin books and some English ones to the College. In 1675 Dr. John Lightfoot, an English divine, eminent for his Rabbinical learning, bequeathed his collection of Oriental literature; and in 1678, Theophilus Gale, philologist, philosopher, and theologian, by the bequest of his library, more than doubled the collections already brought together. In 1682 Sergeant Maynard sent eight chests of books valued at £400. Beginning in 1719 Thomas Hollis, his two brothers John and Nathaniel, the son and grandson of Nathaniel, both named Thomas, and Thomas Brand Hollis, whom the last Thomas Hollis made his heir, in succession devoted to the College an unremitting interest and generosity, which showed itself in the establishment of professorships and scholarships, in constant gifts of books for the library and of philosophical apparatus for scientific work, and ended only with the death of the last named in 1804. The elder Hollis, a strict Baptist but liberal minded, was pleased with the "free and catholic spirit of the Seminary" and during the last ten years of his life was constant in its service and constantly stirring the interest and appealing to the generosity of others. At the same time he did not hesitate to criticise the management of the library. He



THE UNIVERSITY LIBRARY.

writes : " You want seats to sit and read, and chains to your valuable books like our Bodleian Library, or Zion College, in London. . . . You let your books be taken at pleasure, to men's houses, and many are lost ; your (boyish) students take them to their chambers, and tear out pictures and maps to adorn their walls. Such things are not good." He also criticised the President and Fellows for preferring to have Bayle's Dictionary and other works in English rather than in French : " Our students, in London, who sincerely endeavor after knowledge, easily attain to read French," he writes. The last Thomas Hollis showed his interest in the College by donations of books before the fire of 1764, and after the fire immediately subscribed £200 for the purchase of books ; furthermore, in the course of the next six years, he sent hither 41 cases of books, and at his death, in 1774, left a bequest of £500.

When Harvard Hall was burned in 1764, the library was destroyed. This collection, amounting to about 5000 volumes, was by far the most valuable in the country, and its loss was regarded as a public calamity. But so great was the general sense, both here and in England, of the importance of replacing it, so strenuous were the efforts of the Committees appointed by the Corporation and the Overseers, and so lively the interest of others on all sides, that the library soon surpassed its former size, and by 1790 it had increased to about 12,000 volumes. The long roll of donors for 1764 is printed in Quincy's History (ii. 485). Besides the gifts of Thomas Hollis, there were gifts from Governor Bernard (10 guineas and more than 300 volumes), from John Hancock (£554), from the province of New Hampshire (£300), from the

Archbishops of Canterbury and York, from George Whitefield, who also by his influence procured large numbers of books from others in England, and from the various societies for propagating the Gospel and promoting Christian knowledge.

In June, 1775, when Cambridge was occupied by the Continental troops the library was removed to Andover, and in November of the same year a part of it was taken to Concord whither the College had been transferred. The students and the faculty returned to Cambridge in June, 1776, but it was not till May, 1778, that the books were restored to Harvard Hall. Here the library remained till the erection of Gore Hall in 1838, to which the President and Fellows devoted a part of the bequest received from Governor Christopher Gore in 1829. It was supposed that this building would serve the needs of the library for the remainder of the century; but in 1877 enlargement was necessary, and the new east wing was built at an expense of \$90,000. Twenty years later the collection had again outgrown its quarters and the reading room was no longer sufficient for the greatly increased number of students that used it. The President and Fellows met the immediate need by remodelling old Gore Hall. In the lower half of the building a three-story stack, estimated to hold over 200,000 volumes, in place of the 80,000 shelved there before, was built; the upper half was made into a reading room with seats for 218 readers. This room is regarded simply as a temporary expedient; when a new reading room can be built this will be converted into a stack like the floors below it.*

* For reference to the printed and manuscript sources for the history of the College Library see "The Librarians of Harvard

Present Administration. — United in administration with the College Library in Gore Hall, and together with it forming the University Library, are 11 departmental libraries and 23 smaller class room and laboratory libraries. The extent of the several collections in October, 1897, was as follows: —

Gore Hall (the College Library)	355,600
Lawrence Scientific School	5,000
Bussey Institution (Jamaica Plain)	3,600
Phillips Library (Observatory)	8,600
Herbarium Library (Botanic Garden)	7,300
Law School	40,900
Divinity School	27,500
Medical School (Boston)	2,200
Museum of Comparative Zoölogy	32,000
Peabody Museum	1,800
Arnold Arboretum	5,800
Fogg Museum of Art	100
Seven laboratory and sixteen class-room libraries	15,200
	<hr/> 505,600

From 15,000 to 18,000 volumes are ordinarily added to the whole collection by gift and purchase each year.

The annual income of the College Library for the purchase of books is about \$15,000; the expenses of administration are about \$43,000.

The College Library in Gore Hall is open, during term time, every week-day (except holidays) from 9 A.M. to 10 P.M., and on Sundays from 1 to 5.30 P.M. During

College" by A. C. Potter and C. K. Bolton, published as No. 52 of the Bibliographical Contributions of the Library. The list of John Harvard's books and of other early gifts is printed in Mr. Andrew McF. Davis's "Few notes concerning the records of Harvard College," Bibl. Contrib. No. 27.

the summer vacation the Library closes at 5.30 P.M. (at 1 o'clock on Saturdays) and is not open on Sundays. The College Library is for the use of the whole University, and books may be borrowed by students (three volumes at a time), and by instructors and other officers. All other persons are free to consult books in the library, and under certain conditions receive permission to borrow. Professors from other colleges are always welcome. Books are also lent to other libraries when they can be spared without injury to work going on in Cambridge.

Officers of the University have direct access to the shelves in all parts of the library, and students engaged in advanced work are allowed access to those parts of the collection with which they are occupied. All students have the direct use of about 19,000 volumes in the reading room and the adjoining rooms. Of these, 3600 are bound periodicals, 3800 miscellaneous reference books, 3400 government documents, and about 8000 are books withdrawn from general circulation at the request of instructors and "reserved" on shelves in the reading room for use in connection with the courses of instruction.

The Books of the Library.—No complete statement of the strength of the library in different departments is given here: mention is made of the chief special fields in which the library is strong as a result of notable gifts or collections received.

The collection relating to American history, biography, genealogy, and geography numbers about 28,000 volumes, of which nearly 18,000 relate to the United States. The basis of the collection was the libraries formed by Professor Ebeling and David B. Warden, the former the gift of Colonel Israel Thorndike, of Boston, in 1818, and the

latter presented by Samuel Atkins Eliot, of the Class of 1817, in 1823. (Nar. and Crit. Hist. America, vol. i. p. iii.) Both collections are rich in early publications, and, although no attempt is made to buy such of the very rare and costly books as are lacking, pains are taken constantly to strengthen the library in this department.

The collection of books and tracts illustrating the rise and growth of American slavery numbers 990 volumes, as bound, much the larger part being volumes made up of many pamphlets bound together. The collection is largely the result of the assiduity of the late Charles Sumner, of the Class of 1830, and of Thomas Wentworth Higginson, of the Class of 1841.

In 1894 the private library of Francis Parkman, of the Class of 1844, was received by bequest; this includes about 2500 volumes, 2000 pamphlets, and 100 maps. That portion of them which relates to Mr. Parkman's special studies—early American explorations, Colonial history, American Indians, and Canadian history—numbering 1564 volumes, has been kept together as a memorial collection.

The collection of United States Congressional documents numbers 3462 volumes. Many of the earlier and rarer volumes were received with the Ebeling library.

The family of the poet Longfellow, Smith Professor of the French and Spanish Languages and Literatures and Professor of Belles Lettres, 1836-54, have given to the library from time to time volumes of American poetry, most of them presentation copies, amounting altogether to nearly 700 volumes.

The collection of books by and relating to Dante contains over 2000 volumes. In 1884 Professor Charles

Eliot Norton, of the Class of 1846, gave to the College Library the larger part of his valuable collection on Dante, and in 1896 the collection of Dante literature (175 volumes) of George Ticknor, Smith Professor, 1817-35, was given to the library by his heirs. The Dante Society for many years has made an annual appropriation for the purchase of books in this department, and the library is under constant obligation to foreign writers, especially Italians, who have presented many of their works. No. 34 of the Bibliographical Contributions is a catalogue of the collection as it was in 1890.

A collection of books by and upon Milton, numbering 323 volumes, is largely made up of one formed by George Ticknor.

The library received under the will of Thomas Carlyle his collection of books on Cromwell and Frederick the Great, numbering 422 volumes; these are enumerated in No. 26 of the Bibliographical Contributions.

The collection of folk lore and mediaeval romances, numbering about 7300 volumes, is supposed to be the largest in existence. Professor Francis James Child, of the Class of 1846, who is chiefly responsible for its collection, based upon the material here brought together his English and Scottish Popular Ballads. This collection includes a large number of Chap-books, also manuscript copies of all the important collections of popular ballads in the British Museum that have not been printed, and a copy of the large unpublished collection of French popular ballads (with music) which was made by a commission appointed by Napoleon III.

The Slavic collection, which has been increased through the generosity of Archibald Carey Coolidge, of the Class

of 1887, who has given over 2000 volumes, now comprises 3500 volumes relating to the history and literature of the Slavic nations. With the above is included a notable collection on Nihilism (45 volumes and 116 pamphlets) given by Ivan Panin.

The collection of Sanskrit literature includes about 450 printed texts, about 500 manuscripts, the gift of Fitzedward Hall, of the Class of 1846, and about 500 other manuscripts purchased for the library in India by Professor Lanman. Many of the printed books were given by Henry Ware Wales, of the Class of 1838; and to increase the collection, his brother Mr. George Washington Wales, gave for many years \$200 a year.

The collection of music, including both printed books relating to music and musical scores, numbers about 4400 volumes.

The library is well supplied, particularly with the older books, in all departments of theology and Biblical criticism. Ezra Abbott, Bussey Professor of New Testament Criticism and Interpretation, 1872-84, bequeathed his library to the Divinity School. The collection of printed sermons probably numbers about 10,000.

In 1888 John Harvey Treat, of the Class of 1862, presented his collection of works on ritualism and doctrinal theology, numbering 587 titles. It is catalogued in *Bibliographical Contribution*, No. 36.

Jared Sparks, of the Class of 1815, President of the University from 1849 till 1853, left his collection of manuscripts — mostly copies, but including some originals, such as the papers of Governor Bernard — to the library, and his family has since placed in the library his private manuscripts, correspondence, diaries, etc.

A calendar of the historical manuscripts and of other minor collections of papers relating to American history constitutes No. 22 of the Bibliographical Contributions. The most considerable collection of original manuscripts in this field possessed by the library is the papers of Arthur Lee, which were left to the library in 1827. Two other parts of the same collection were given at the same time to the American Philosophical Society in Philadelphia and to the Library of the University of Virginia. A calendar of the portion in Harvard College Library is given in No. 8 of the Bibliographical Contributions.

No. 6 of the Bibliographical Contributions (1879) shows part of the books and autographs bequeathed to the library by Charles Sumner. The collection is a general one, but embraces many books of curious and bibliographical interest, and interesting autographs. Sumner's correspondence, mounted in 171 volumes, has also come to the library since the death of Mr. Edward L. Pierce, his biographer.

In 1892 Mr. John Bartlett, of Cambridge, gave to the library his collection of books on angling, fishes, and fish culture, numbering 1014 volumes and 269 pamphlets. It is catalogued in No. 51 of the Bibliographical Contributions. Mr. Bartlett has also given his collection of Proverbs and Emblems, comprising about 250 volumes.

The library has some works in American aboriginal linguistics. Chief among them is the Abenaki Dictionary of Sebastian Rasle, which was printed under the editing of John Pickering, in 1833, by the American Academy of Arts and Sciences (see Bibliographical Contributions, No. 22, p. 86).

The linguistic contributions to the study of the Delaware and other aboriginal languages of the Indians living in the present Middle States, by David Zeisberger, a Moravian missionary, were given to the library in 1845 (see Bibliographical Contributions, No. 22, pp. 86-88, and the enumeration in J. C. Pilling's *Algonquian Languages*, Washington, 1892).

The collection of loose maps, numbering about 17,500 sheets, is the largest in the country; the basis of the collection is that formed by the late Professor Ebeling of Germany, which came to the library with his collection of Americana in 1818. It has been added to from time to time, particularly so as to complete the cartographical publications of the United States government and the topographical surveys of the principal European countries. The collection of bound maps and atlases numbers about 800 volumes. It includes facsimile collections, and the printed editions of the early geographers. Printed books which are useful in facilitating the use of the collection are provided, and there is a manuscript subject catalogue of the maps.

THE DIVINITY SCHOOL.

That a leading purpose of the founders of Harvard College was to provide for the churches a learned ministry may be seen from the inscription carved upon a tablet at the entrance to the College Yard.

Instruction in theology has been given at Harvard College from the time of its foundation. The first professorship instituted in the University was the Hollis Professorship of Divinity, established in 1721. The

differentiation of the Divinity School from the College was very gradual. Its Faculty was formally organized in 1819. A separate list of its students — previously included under the head of Resident Graduates — first appears in the Catalogue for 1819–20. The organization of the three oldest professional departments of the University, under the titles Theological School, Medical School, and Law School, is first indicated in the Catalogue for 1827–28.

The constitution of the Divinity School prescribes that “every encouragement be given to the serious, impartial, and unbiassed investigation of Christian truth, and that no assent to the peculiarities of any denomination of Christians shall be required either of the instructors or students.”

The administration of the School is now carefully conformed to this principle. Various denominations are represented in its Faculty and among its students. The aim of its management is to maintain a school in which all matters connected with theology shall be studied in a spirit as free as that in which philosophy, history, and classical literature are studied in colleges. At the same time, special attention is given to preparation for the practical work of the ministry.

The Library Building of the Divinity School was completed in 1887 at a cost of about \$40,000. It contains the library; a reading room; a faculty room, which serves as the office of the Dean of the School; a room used for the general purposes of the students; and three lecture rooms.



DIVINITY LIBRARY.



DIVINITY HALL.

Divinity Hall, erected under the auspices of the Society for Promoting Theological Education in Harvard University, which secured contributions amounting to about \$20,000, was completed in 1826. It contains 37 rooms, a reading room, and a chapel. The library formerly housed there has been removed to the new Divinity Library.

THE LAW SCHOOL.

Austin Hall.—Dane Hall, in the southwest corner of the College Yard, erected in 1832 and enlarged in 1845, was occupied by the Law School until 1883, when Austin Hall, in Holmes Place, the present home of the School, was finished. For this building the University is indebted to the liberality of Edward Austin, and the architectural skill of Henry Hobson Richardson.

On the first floor are three lecture rooms, a reading room, and three professors' rooms. The mezzanine story contains three more professors' rooms. On the second floor are the administrative offices, the library stack with a capacity of 65,000 volumes, and the large reading hall or workshop of the students. The library contains 44,000 volumes.

The Law School possesses a unique collection of portraits of eminent judges and lawyers. English Chancery judges are to be seen in the north lecture room, and English Common Law judges in the west lecture room. The portraits of American lawyers and judges are in the reading hall and in the east lecture room.



THE LAW SCHOOL.

THE MEDICAL SCHOOL.

The Medical School Building is situated at the corner of Boylston and Exeter Streets, Boston. It is a fire-proof structure of brick and terra cotta, built in 1883 by the generous subscriptions of "friends of medical education."

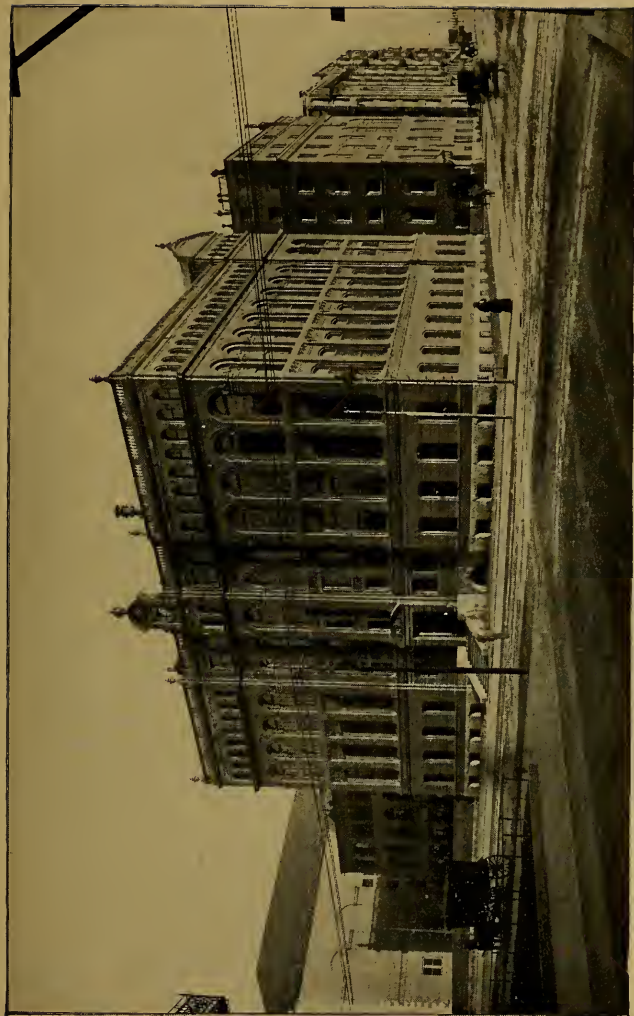
The building is four stories high, with two half stories between the second and third, and the third and fourth floors. The entrance, from Boylston Street, is to a large, central hall, lighted from the roof. From this hall rises an iron stairway to the galleries leading to the lecture rooms and the laboratories. On the right of the entrance are the faculty room and the office of the Dean and the Secretary: on the left are the rooms of the Janitor. In the rear of the faculty room, extending along the Exeter Street side of the building, are the laboratories for bacteriology, for materia medica, pharmacology, and experimental therapeutics, and also for hygiene. In a large hall on the left, and also in the rear of the entrance hall are arranged lockers for the students' use; and there is also on this floor a room for a branch of the Harvard Coöperative Society. A smaller iron stairway and the elevator shaft are placed in a fire-proof structure behind the central hall and the galleries.

The second story is devoted to the Departments of Physiology and Chemistry. On the right is the main chemical laboratory and the private work rooms of the Professors of Chemistry and their assistants. On the left are the physiological laboratory and the large lecture room used by the two departments: this room is arranged

as an amphitheatre, and has a seating capacity of 200. In the mezzanine story above the second floor are the private laboratories of the Professor of Physiology, facilities for special research, and smaller laboratories for clinical microscopy and hematology.

The Warren Anatomical Museum is placed in a room occupying two thirds of the front of the third story. It contains about 10,000 specimens, fully illustrating normal and pathological anatomy and materia medica. Numerous dissections, corrosive preparations, frozen sections, and large models of the bones, made under Professor Dwight's direction, are found in the normal division. In addition, Professor Dwight has prepared a collection of bones, illustrating the variation in individuals. Diseased bones and organs which show changes in shape, size, or structure are preserved in alcohol or dried; those in which the color is of especial importance are prepared by the new method of Kaiserling. During the year 1897-98 more than 200 were put up in this way, and in 1898 the color of these had still kept well. There are also many skulls of different races, and rare and unique specimens. Among the latter is the celebrated "crow-bar skull." This came from a man who, while tamping a blast, received the accidental discharge of an iron, which passed completely through his head, destroying a portion of the left frontal lobe of the brain. He recovered, and lived for 13 years with no impairment of his faculties. The room is open during the day to students and visitors, and every facility is offered to the visitor for the study of the specimens both in and out of the cases.

The Exeter Street side of the third story is occupied by two large lecture rooms; on the opposite side is the



THE MEDICAL SCHOOL.

amphitheatre used for the lectures in anatomy and surgery. Beneath the rising tiers of seats are the private rooms of the Professor of Surgery and the Assistant Professor of Anatomy; in the rear of this floor are the rooms of the Demonstrator of Anatomy and his assistants.

The mezzanine story above the third floor contains only the private room of the Professor of Anatomy; the remaining space is devoted to the large lecture rooms of the third story.

The front of the fourth story is devoted to the Department of Histology and Embryology; the remaining room is used by the Professors of Anatomy and of Clinical Surgery. The dissecting room occupies the Exeter Street side; it is lighted from the roof as well as through the side walls. There are accommodations for 18 tables. In the rear of the dissecting room is a small amphitheatre for lectures, and the macerating room and the other work-rooms of the Department of Anatomy. The large anatomical amphitheatre rises through this story to the roof of the building. The basement contains, in addition to the heating and ventilating plant, ample provisions for cold storage.

The building as originally planned proved to be inadequate for the increasing needs of the School, and in 1890, the generosity of Henry Francis Sears, an alumnus of the College and the School, enabled the President and Fellows to build an addition to the main building, providing for the especial needs of the Department of Pathology. The basement is fitted up for the care of animals and for the storage of material. The first story is assigned to the Professor of Bacteriology, and is used chiefly for gradu-

ate and special instruction. The second and third stories are devoted to pathology and pathological history.

THE DENTAL SCHOOL.

The Harvard Dental School was instituted by vote of the President and Fellows of Harvard College, July 17, 1867. In 1865 Dr. Nathan Cooley Keep had, in his annual address before the Massachusetts Dental Society, of which he was then President, suggested the need of a Dental School in connection with Harvard University; and thus the movement which resulted in the establishment of the School took its beginning. The first session of the School opened on the first Wednesday in November, 1867, and continued until the following March. The first examination of candidates for the degree of the School was held March 6, 1869.

The School building, formerly used by the Medical School, is situated on North Grove Street, Boston. The building is three stories in height. The first floor contains the chemical laboratory, provided with 140 desks, the Janitor's rooms, and the store room. The second floor is used for the mechanical laboratory, the waiting room, the anaesthesia and the surgical rooms, lecture rooms, and the office. The large lecture room has a seating capacity of 300. On the third floor are two operating infirmaries, B and C, an office, and a surgical room. Each of the infirmaries has 27 operating chairs; the surgical room is provided with a surgical chair, cases, and instruments. The fourth floor contains a surgical clinic room.

The museum of the School is situated on the third floor and contains, in properly arranged cabinets, specimens

of comparative anatomy, materia medica, mechanical pieces, dental and surgical instruments, pathology, orthodontia carving, etc. Included in the specimens of comparative anatomy are 24 Hawaiian skulls, more than 1500 years old, found in the caves of the Hawaiian Islands, which show many of the modern diseases known to dentistry. The total number of specimens in the museum is more than 3000. The library, which is in process of formation, contains some 130 bound volumes, together with many pamphlets.

THE SCHOOL OF VETERINARY MEDICINE.

The School of Veterinary Medicine was opened in the year 1882-83. It is situated at and near the corner of Village and Lucas Streets, Boston, and occupies for purposes of instruction and for hospital purposes two brick buildings. In a third building a Free Clinic is maintained in connection with the School.

The objects of the Corporation and the Overseers in organizing this School were to provide a thorough training for veterinary practitioners, and to lay the foundations of an advanced school of comparative medicine. From the beginning the School has been fostered and aided by the Faculty of Medicine.

The Lucas Street Building contains a dissecting room, extending upward through two complete stories of the building in order to secure good ventilation and shadowless light; a lecture room; a reading room, open to members of the various classes; a museum; bed rooms for house-surgeons; etc.

The Village Street Hospital was established in 1883, a year after the foundation of the School, for the treatment and observation of sick animals; its wards and cases are used by students precisely as hospitals for man are used by students in medicine. It contains an operating room and wards. Separate wards are provided for dogs.

A Forge has been established, to which students have access at all times, and in which it is possible for them to obtain instruction in horse-shoeing, if they so desire, although a practical training in this is not considered a necessary part of the education of a veterinary physician. The theory of shoeing is, however, thoroughly taught.

THE BUSSEY INSTITUTION.

The School of Agriculture and Horticulture, known as the Bussey Institution, was established in execution of trusts, created by the will of Benjamin Bussey, bearing date of July 30, 1835. The School, which is situated at the outer edge of Jamaica Plain, close to the Forest Hills stations of the Electric Railway and the New York, New Haven, and Hartford Railroad, was opened in 1871-72.

The large stone building of the Institution contains lecture rooms, recitation rooms, and laboratories for instruction in agriculture and horticulture, and in natural history and chemistry, as applied to those arts. It contains, also, a library of some 3700 volumes relating chiefly to agriculture and horticulture. The greenhouses afford opportunity for teaching the manual operations of horticulture and for supplying plants and flowers for use in teaching the botanical classes in this and other depart-



THE BUSSEY INSTITUTION. — SCHOOL BUILDING.



THE ARNOLD ARBORETUM. — MUSEUM.

ments of the University. The nurseries and park-like plantations of the Arnold Arboretum are adjacent to the buildings of the School and serve to supplement its teachings.

Connected with the School is a farm, on which forage is grown and animals are kept.

The students of this School include persons intending to become farmers, gardeners, foresters, florists, landscape gardeners, managers or stewards of large estates or of parks, towns, highways or public institutions, overseers of farms, and owners of rural property.

THE ARNOLD ARBORETUM.

The Arnold Arboretum, a living museum of trees and shrubs, is managed by a director who is also Professor of Arboriculture. It occupies 220 acres of land in Jamaica Plain, near the Forest Hills station of the New York, New Haven, and Hartford Railroad, with two entrances from the Parkway of Boston, which forms its eastern boundary, and others from Centre Street, Walter Street, and South Street, Jamaica Plain. It was established in 1872 by an arrangement between the President and Fellows and the trustees under the will of James Arnold, of New Bedford, the President and Fellows furnishing about 120 acres of land which formed part of the so-called Bussey Farm bequeathed to them by the late Benjamin Bussey, and Mr. Arnold's trustees an endowment of \$100,000, which has since been increased by accumulated income and other gifts to \$170,000. By another arrangement, made subsequently with the City of Boston, the Arboretum is open to the public every day in

the year from sunrise to sunset, and the city, through its Park Commissioners, has built roads and walks in the Arboretum and supplies the police force necessary for its protection. Additional land was also acquired by the city and added to the Arboretum, which in 1894 was further enlarged by the President and Fellows with 75 acres of ground belonging to the Bussey Farm.

The Arboretum is now traversed by between three and four miles of park roads, along which all the trees hardy in the climate of eastern Massachusetts are arranged in great open groups of genera, American species being followed first by European and then by Asiatic species. These tree groups are bordered by shrubs, as far as possible of the same related genera, and in a special collection, occupying several acres near the entrance from the Forest Hills station, all the shrubs hardy in this climate are arranged in parallel beds, according to their botanical relationships. The Arboretum also contains large areas of woodland, — in the management of which the object sought is the production of the greatest natural beauty, — and many fine native trees. From its two high hills views of the distant country and of the City of Boston and its harbor can be obtained.

The Arboretum is equipped with a herbarium of ligneous plants preserved in a fireproof building; this contains very full sets of specimens of all North American trees and is rich in the types of the woody vegetation of the whole northern hemisphere; the dendrological library of nearly 7000 volumes and several thousand pamphlets is believed to be unrivalled in its completeness. Special students in dendrology are received at the Arboretum, and every spring and autumn popular lectures are given,

largely to teachers ; but it is principally managed as a station for scientific research into the character, the distribution, and the uses of hardy trees and shrubs, and of the best methods for their cultivation.

PLAYGROUNDS AND BUILDINGS FOR ATHLETICS.

The Soldiers' Field, containing 20 acres, situated in Allston, a part of Boston, just beyond the Charles River, was given to the College in 1890 by Henry Lee Higginson, of the Class of 1855. It is the chief playground of the students.

A shaft near the entrance to the field bears this inscription : —

TO THE
HAPPY MEMORY OF
JAMES SAVAGE
CHARLES RUSSELL LOWELL
EDWARD BARRY DALTON
STEPHEN GEORGE PERKINS
JAMES JACKSON LOWELL
ROBERT GOULD SHAW
FRIENDS COMRADES KINSMEN
WHO DIED FOR THEIR COUNTRY
THIS FIELD IS DEDICATED BY
HENRY LEE HIGGINSON

THOUGH LOVE REPINE AND REASON CHAFE
THERE CAME A VOICE WITHOUT REPLY
'TIS MAN'S PERDITION TO BE SAFE
WHEN FOR THE TRUTH HE OUGHT TO DIE

Other play grounds are Holmes Field, adjacent to the Gymnasium and the Carey Building, and Jarvis Field, a few hundred feet from Holmes Field. Holmes Field has an unencumbered area of about five acres; Jarvis, of about four acres. The latter is used exclusively for tennis.

The Weld Boat House, the gift of George Walker Weld, of the Class of 1860, was built and equipped with boats in 1889-90. It is intended especially for the use of students not rowing on the 'Varsity Crew or the Class Crews, and contains about 324 lockers, besides shower-baths, etc.

The University Boat House, a short distance down-stream from the Weld Boat House, is for the use of the 'Varsity Crew and the Class Crews.

The Locker Building, on the Soldiers' Field, was erected by subscriptions from alumni in 1893-94. It contains shower-baths, and 1500 lockers.

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LIBRARY OF CONGRESS



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